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ENVIRONMENTAL IMPACT STATEMENT ON

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December 1989

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State of Montana
Office of the Governor
Helena, Montana 59620
406-444-3111

STAN STEPHENS
GOVERNOR

September 27, 1989

Dear Friend,

The oil and gas industry is an essential element to Montana's economy and I am a strong advocate for sound development of our natural resources.

This programmatic environmental impact statement, which includes an environmental checklist and direction for the Board staff to consult with other public land managers on some permits, helps to usher in a new era in oil and gas permitting in Montana.

In this, our Centennial Year, we are honoring Montana's past and her future. As we celebrate our 100th birthday, we all have recognized how Montana has changed over the years. Our people have changed, our policies have changed, and our values have changed.

So it is natural that the permitting process for oil and gas development also change. The Board's recent decision on permitting, coupled with this document, take great strides to ensure that drilling permits will continue to be approved in a reasonable and responsible manner, and will be done with proper public involvement and proper respect for the environment.

No document is perfect, and no document which suggests change is uniformly embraced by the public or industry. But I commend the Board for their work on this document, I support the document itself, and I continue to support our oil and gas industry.

Sincerely,

A handwritten signature in cursive script, reading "Stan Stephens".

STAN STEPHENS
Governor



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FINAL PROGRAMMATIC ENVIRONMENTAL
IMPACT STATEMENT

OIL AND GAS DRILLING AND PRODUCTION
IN MONTANA

prepared for the
BOARD OF OIL AND GAS CONSERVATION

Pursuant to Senate Bill 184
with assistance from

Office of the Governor
Department of Health and Environmental Sciences
Department of Fish, Wildlife and Parks
Department of State Lands
Department of Natural Resources and Conservation

December 1989

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION	1
CHAPTER TWO: SUMMARY OF THE DRAFT PEIS	
INTRODUCTION	3
OIL AND GAS DRILLING AND PRODUCTION OPERATIONS	3
Siting and Construction	3
Drilling Muds	4
Blowout Prevention Procedures and Equipment	4
Well Completion	4
Production	4
Disposal of Produced Water	5
Well Abandonment and Site Restoration	5
ROLES AND RESPONSIBILITIES FOR OIL AND GAS ACTIVITIES	5
DESCRIPTION OF IMPACTS AND MITIGATING MEASURES	5
Economic and Public Service Effects	5
Air Quality	6
Health, Safety, and Noise	6
Wildlife and Fisheries	6
Water Quality	7
Recreation and Aesthetics	7
Other Concerns	7
PROGRAM ALTERNATIVES	8
CHAPTER THREE: TECHNICAL CORRECTIONS TO THE DRAFT PEIS	
INTRODUCTION	11
OIL AND GAS DRILLING AND PRODUCTION OPERATIONS	11
ROLES AND RESPONSIBILITIES FOR OIL AND GAS ACTIVITIES	18
DESCRIPTION OF IMPACTS AND MITIGATING MEASURES	18
LIST OF PERSONS PREPARING THE EIS	23
OIL AND GAS REFERENCES	23
CHAPTER FOUR: COMMENTS AND RESPONSES	
INTRODUCTION	25
COMMENTS AND RESPONSES	25
Industry	26
Local Government and Associations	69
Interested Individuals	88
Federal Agencies	108
Conservation Organizations	115
Public Meetings	128
Billings	129
Sidney	143
Great Falls	165

CHAPTER FIVE: ADDITIONAL INFORMATION SUPPLEMENTING THE DRAFT PEIS	
DRINKING WATER STANDARDS	189
CHANGES IN STATE OIL AND GAS LEASES	189
CHANGES IN WELL BONDING REQUIREMENTS	191
EXPLORATION AND PRODUCTION WASTE DISPOSAL STUDY	191
OIL AND GAS WELL PIPELINE PROBLEMS	191
PUBLIC NOTICE AND PARTICIPATION REQUIREMENTS FOR PERMITS TO DRILL	192
MEPA REQUIREMENTS REGARDING EXPLORATORY WELLS ON STATE-OWNED LANDS	192
CHAPTER SIX: COMPONENTS OF THE BOARD’S MEPA PROCESS	
INTRODUCTION	193
SUMMARY OF IMPACTS AND MITIGATING MEASURES	193
ENVIRONMENTAL REVIEW ALTERNATIVES	197
Topics for Potential Board Rule Revision and Guidelines	198
Board Review of Drill Permit Applications	212
Board Evaluation of Environmental Impacts	219
BOARD RELATIONSHIPS WITH OTHER AGENCIES	223
BOARD STAFFING AND BUDGET CONSIDERATIONS	224
CHAPTER SEVEN: IMPLEMENTATION OF THE PEIS	
DESCRIPTION OF THE BOARD’S MEPA PROCESS	227
Phase I	227
Phase II	228
Phase III	228
SCHEDULE FOR IMPLEMENTATION	228
REFERENCES:	231
APPENDIX A: CORRECTIONS TO THE APPENDIX VOLUME OF THE DRAFT PEIS	233
APPENDIX B: CHANGES TO CHAPTER FIVE OF THE DRAFT PEIS	237

CHAPTER ONE

INTRODUCTION

In January 1989, the Board of Oil and Gas Conservation (Board), with assistance from the Department of Natural Resources and Conservation (DNRC), released the draft Programmatic Environmental Impact Statement on Oil and Gas Drilling and Production in Montana (PEIS). Following release of the draft PEIS, an initial 60-day comment period was extended an additional 45 days. The Board held three public meetings on the draft PEIS—February 22 in Billings, March 1 in Sidney, and March 8 in Great Falls. Written comments on the draft PEIS were accepted until May 15, 1989.

The 1989 Montana Legislature passed Senate Bill 201, which gave the Board until December 31, 1989, to complete the PEIS and adopt a process to review drill permits in compliance with the Montana Environmental Policy Act

(MEPA). Senate Bill 201 provided the Board with 6 more months to consider the options presented in the draft PEIS and to select a process that would implement MEPA compliance on January 1, 1990.

This final PEIS summarizes, updates, and revises the draft PEIS on the basis of comments received and the Board's wishes regarding a process that will provide prompt and efficient review of drilling permits maintaining environmental protection.

Following release of the final PEIS, written comments will be accepted for 15 days. The Board will hold a public meeting in Billings on December 28, 1989, to adopt the programmatic EIS.

CHAPTER TWO

SUMMARY OF THE DRAFT PEIS

INTRODUCTION

The Programmatic Environmental Impact Statement on Oil and Gas Drilling and Production in Montana was prepared under the direction of the Office of the Governor according to the requirements of Senate Bill 184 as passed by the 1987 Legislature. The legislation temporarily exempted the Board of Oil and Gas (Board) from the requirements of the Montana Environmental Policy Act (MEPA) when issuing permits to drill for oil or gas. The exemption, which was extended by Senate Bill 201 in 1989, will remain in effect until the Board adopts a version of the PEIS to guide the Board in bringing the permit issuance process into compliance with MEPA, but no later than December 31, 1989.

The purpose of the programmatic EIS is to provide a quick and efficient reference document and to discuss methods for the Board to use in integrating MEPA into its decision making. In most cases, the drilling of an individual oil or gas

well does not cause major adverse impacts to the environment if proper care is taken in well siting and construction, proper disposal of drilling fluids and other wastes, and if safe drilling practices and proper reclamation are used. Other than these considerations which are applicable to all drilling operations, the potential for adverse impacts is almost entirely dependent on the sensitivity of individual drilling locations. The potential for impacts increases when the length of time and size of drilling rig necessary to drill a particular well increases, particularly in sensitive settings. In some cases, environmental conditions signal the need for special precautions.

Major adverse environmental effects are most likely when a wildcat drilling operation leads to discovery of a commercially producible oil or gas reservoir and full-field development commences in a previously undeveloped area.

OIL AND GAS DRILLING AND PRODUCTION OPERATIONS

The Board's authority over the exploration and production of oil and gas in Montana begins with the Board's decision of whether to issue a permit to drill. For decision making purposes, the Board has divided the state into seven regions on the basis of drilling and production characteristics. The regions are the Big Horn Basin, Powder River Basin, Central Montana, Williston Basin, Northern Montana, the Disturbed Belt, and Western Montana. Wells in each region can be considered typical on the basis of several criteria, primarily depth and hazards to drilling or production. For example, a 12,000 foot well is typical of the Williston Basin, while wells in Central Montana tend to be less than 4,000 feet.

Access roads and drilling sites vary according to the size of the rig. Shallow wells usually require 1/2 acre or less for the drill site, whereas very deep test holes such as those in Western Montana may require as much as 6 acres.

An earthen "reserve" pit is excavated near a rig. The size and location of this pit are determined in part by the depth to be drilled. The pit serves as storage for drilling fluids and a receptacle for drill cuttings and other solids removed from the circulating system. Requirements and the necessity for lining the reserve pit often depend on the type of drilling fluid, its chemical contents, the permeability of materials, and depth to groundwater at the location.

SITING AND CONSTRUCTION

Different depths of drilling require different types of equipment. In Northern Montana where wells normally reach only 1,000 to 2,000 feet, a portable truck-mounted rig is usually used. These rigs require only about four or five truckloads of equipment and a single derrick about 70 feet high. In the Williston Basin, by contrast, the deeper drilling rigs require 20 to 50 loads of equipment and a derrick 150 to 170 feet high.

For wells where air is used as the drilling fluid, the pit is used to contain drill cuttings and any water encountered during drilling. It also is used as a flare pit in the event natural gas is encountered. In some areas, particularly Central and Northern Montana, working pits are excavated in addition to the reserve pits. The working pits are used to hold drill mud that is circulated through the mud system. Mud from the pit is pumped down the well, and then circulates through the system back to the pit. Other excavations near the rig often include a small trash pit for collection of mud sacks and other trash generated on site. Privy pits or holes

and sometimes sewage containment tanks are installed, depending on the anticipated duration of occupancy.

After the road and drill pad are built and the reserve pit excavated and lined, the rig is trucked in and rigged up. A 30-foot string of large diameter (24- to 36-inch) conductor pipe is installed first. Once the conductor pipe is in place, the rig drills the "surface hole." The surface hole normally is lined with surface casing set to at least 150 feet, or 5 to 10 percent of the anticipated well depth. The setting depth is selected to protect freshwater aquifers, and to provide a competent seat for additional casing strings which are mechanically attached to the top of the surface casing. To further protect groundwater, the surface hole normally is drilled with clear water and with the native mud that forms in the process of drilling through natural clay-bearing formations. Sometimes the native mud is lightly treated with bentonite to enhance its usefulness for drilling.

DRILLING MUDS

Drilling fluids used in Montana range from air or untreated fresh water to expensive and complex emulsion mud. Drilling fluid serves several purposes and its composition usually is a compromise among the desirable and undesirable qualities. Drilling fluid lifts the cuttings from the hole, lubricates and cools the bit, provides pressure to control the influx of fluids from formations that are penetrated, and builds a hole-stabilizing filter cake to control caving and loss of drilling fluid to porous zones.

Most liquid-drilled wells in Montana, except for those in the Williston Basin, are drilled with a freshwater-bentonite-clay mud system. This mud can be easily adjusted for viscosity, weight, and strength by addition of clay or water.

Additives are used to produce various qualities in drill mud. Such additives may include corn starch to reduce fluid loss to rock formations, barite to increase fluid weight, or caustic soda to control acidity. Other additives may be used to thin or thicken the mud, lubricate the bit, inhibit pipe corrosion, and prevent bacterial action in the mud system.

In the Williston Basin, saltwater-based muds are used below the surface casing to avoid washing out or dissolving the salt-bearing formations encountered in drilling in this area.

BLOWOUT PREVENTION PROCEDURES AND EQUIPMENT

Blowout prevention (BOP) equipment is used to prevent the loss of control of a well while drilling. This loss of control can occur when the well encounters formations with high-pressure fluids, which can be oil, gas, water, or a combination of these. These fluids normally can be kept out of the well bore by the weight of the drilling fluid, but if the fluid is

not dense enough, they may enter the well. Natural gas is the most common fluid encountered, and the most difficult to control. The gas is compressed by the pressure at depth in the well, and when it travels up the well toward the surface it expands as the pressure decreases. This expansion displaces mud and further reduces the pressure in the well, allowing more gas to enter the well. If not controlled, this gas can cause the well to blow out, pushing all the mud out of the hole.

In areas already producing oil or gas, Board rules require use of blowout prevention equipment sufficient to meet the known conditions. For exploratory wells in regions where conditions are not known, the Board requires an array of blowout preventers sufficient to meet any foreseeable situation.

WELL COMPLETION

If a completed well appears capable of commercial production, the drilling rig runs production casing into the hole. A well's production is usually tested for 10 to 30 days before permanent surface equipment such as tank batteries are installed.

PRODUCTION

A well can produce either gas or oil, or both. Oil wells generally require more surface equipment than gas wells. Individual wells may have their own tank batteries consisting of two or three storage tanks for oil, a water tank, and a heater-treater. The heater-treater is used to separate the water that often is produced along with the oil. The tanks provide storage for several days' production. In fields where all the owners share in the total production, one or more consolidated tank batteries may serve the entire field.

The size of oil and gas fields in Montana can vary widely from the one well field to multiple wells within a field. The type of geologic feature or structure contributes greatly to the size of any particular oil or gas field. In fields with more than one well, the spacing of wells is based on the amount of subsurface that one well can efficiently and economically drain. Gas wells typically require spacing based on one well per 320 or 640 acres, or 1 to 2 wells per section. Oil wells usually require more wells to drain a subsurface area than do gas wells. In Montana, oil wells usually are spaced 160 or 320 acres, or 2 to 4 wells per section, although shallow oil fields may require 40- or 80-acre spacing per well.

Some oil wells flow without pumping, and these usually do not require any surface equipment other than a well-head and valves to control the flow. Once a well stops flowing, some method of artificial lift must be employed. Natural gas may be injected to lighten the fluid and renew the flow, or any of several types of pumps may be installed. Such pumps

may be electric or hydraulic submersible, or a mechanical rod pump. The rod pump is the familiar “rocking horse” type, which may be powered by electric or internal combustion power units. The deeper the well, the bigger the unit.

DISPOSAL OF PRODUCED WATER

The water produced from oil and gas wells in Montana ranges from relatively fresh to much more salty than sea water. Most salt water is disposed of in injection or disposal wells. Some of the fresher water is stored in earthen pits and allowed to evaporate. Water of an acceptable quality can be discharged for beneficial use on the surface, if proper approvals are obtained.

WELL ABANDONMENT AND SITE RESTORATION

Dry holes are normally plugged immediately upon completion of the well. Cement is placed through the drill string to plug off the wellbore where it penetrates porous formations, or as necessary to ensure at least one plug every 2,500 feet. A plug is set at the bottom of the surface casing, and another at the top. A length of 4-inch pipe is usually left to extend 4 feet above general ground level to mark the location of the hole. Six feet of this pipe is embedded in the cement of the surface plug. If the surface owner does not wish the dry hole marker to be installed, the surface casing will be cut off at least 3 feet below ground surface and closed with a welded plate above the cement plug.

Surface restoration begins after the drilling rig and equipment is removed from the site. Typically, a period of time is allowed for the liquids in the reserve pit to evaporate. An alternative is to skim liquids from the pit, load them into trucks, and haul them to a disposal well or to another drilling operation for use as drilling fluid. In the case of dry holes, fluids may be pumped back down the hole as part of the plugging operation. In cases where the drilling fluid is a nontoxic freshwater-clay combination, the landowner may request that the pit contents be used to line stock ponds or dams. Sometimes, a small amount, less than a barrel, of oil residue will be left after the water is removed from the pit. This oil is skimmed or suctioned up and removed.

After the fluids have been removed, the pit is filled in. Dirt is mounded on top to allow for settling. Muds normally are left in the pit. In the Williston Basin, it is common to tear or break the pit liner after the top water has been removed, then dig trenches to drain any remaining fluids, and conclude by backfilling the pit.

Along the Cedar Creek Anticline, the pit liners are commonly folded in and buried with the contents intact. The Cedar Creek area is pasture land, and the soils are dry, so the buried muds do not tend to remain soggy or present problems to the surface owner. Once the pit is backfilled, topsoil that was saved during excavation is reapplied and the surface is reseeded to the owner’s specifications.

ROLES AND RESPONSIBILITIES FOR OIL AND GAS ACTIVITIES

Before drilling an oil or gas well, an operator must file a notice of intent to drill with the Oil and Gas Conservation Division, and must receive a drilling permit from the Board of Oil and Gas Conservation. The Division acts as staff to the Board in processing the application.

Before a drilling permit is issued, the Division checks to see that a bond is on file with the Helena office to ensure that the operator will properly plug and abandon the well. Under established procedures, the drilling permit is issued if

the notice from the applicant contains the required information and meets the established rules on bonding, spacing, setting of surface casing, and public notice.

Although the Board’s authority covers all land in Montana, other agencies have various degrees of control over land they manage and lease, or have overlapping responsibilities with the Board regarding certain air and water quality or waste disposal questions.

DESCRIPTION OF IMPACTS AND MITIGATING MEASURES

The potential impacts from drilling vary for different wells and different parts of the state. Most wells are not expected to create problems if considerations such as the length and type of operation and characteristics of the site or location are weighed properly when the drilling is approved.

ECONOMIC & PUBLIC SERVICE EFFECTS

Oil and gas activity has produced significant benefits for the Montana economy. It contributes substantial reve-

nues to state and local governments and the state’s educational systems. The industry provides notable income for workers, mineral owners, and other businesses and their employees. The industry also is subject to boom/bust cycles which contribute to problems for local and regional economies and to problems for local governments in providing public services. Natural gas exploration and development has had less social and economic effect than the effects attributed to oil exploration and development.

The degree to which impacts of oil and gas development can affect local economic and local government and school situations is influenced by the scale and duration of development activities and the sizes of communities being affected. Well depth (deeper wells employ more personnel), the number of wells being drilled and the duration of development activities affect the extent of local economic and population changes. Because of their more diversified economies and tax bases and better developed service infrastructures, Montana's larger cities are best able to deal with the consequences of moderate-to-large changes in economic activity and population.

Actions by local governments, schools, and businesses can lessen the disruptive effects that can accompany oil and gas development. Strategies for coping with the effects of development should be based on the best available information regarding industry activities and plans, and an understanding of the cyclical nature of oil and gas development.

AIR QUALITY

Most individual wells do not produce pollutants in quantities or concentrations that would violate ambient air quality standards or trigger the need for an air quality permit. The oil and gas-associated air pollutants most likely to cause problems include nitrogen dioxide, hydrogen sulfide, sulfur dioxide, and other sulfur compounds. The likelihood of problems occurring and severity of their adverse effects depends on conditions, such as the duration of drilling and types of equipment used; the concentration of hydrogen sulfide in the gas, associated gas or oil; the volume of production; proximity of residences, public roads or areas accessible to the public; proximity of Class I or other sensitive areas where air quality degradation is especially problematic; and local terrain and meteorological conditions.

HEALTH, SAFETY, AND NOISE

The oil and gas industry has developed an extensive array of specialized equipment and procedures to ensure proper control and operation of wells. Also, contingency plans may be prepared in sensitive locations to identify the actions that would be taken to respond to a hydrogen sulfide emergency and protect the public.

Effects on human health and safety from oil and gas drilling and production results primarily from loss of control of a well and, where hydrogen sulfide is present, the possibility of a major blowout or pipeline rupture exposing the public to elevated and possibly lethal concentrations of the gas.

Well blowouts are extremely rare, but where concentrations of the gas and flow volume are relatively high, and where residences or urban centers are relatively close to a well, the consequences of a blowout could be highly adverse.

Drilling and production operations can produce noise levels that exceed those typically found in many rural areas of Montana. Still, the level of noise affecting nearby residents can often be mitigated to acceptable levels through use of mufflers, sound screens, auxiliary brakes when stopping the draw works, by choice of drilling rigs, and by orienting the rig to reduce sound levels in the direction of residences.

WILDLIFE AND FISHERIES

In most cases, an individual well drilling operation will not create significant long-term adverse effects on wildlife if the well turns out to be a dry hole and the access road is reclaimed. Potential for significant adverse impacts will be greatest where an initial wildcat well leads to discovery of a commercial oil and gas reservoir and full field development, or where an access road into a previously inaccessible area is not reclaimed.

Possible adverse impacts on wildlife from oil and gas development are associated with increased road construction; displacement of animals from winter range in mountainous areas; and stress during the winter, spring, and young-rearing period. Based on criteria such as acres of winter range, susceptibility of winter range to impact, species diversity, and probability of impact on resident species, the regions of the state most susceptible to adverse impact, in decreasing order of importance, are: Overthrust, Northern, Big Horn, Central, Powder River, and Williston Basin. Operations located in mountainous terrain can be expected to create more serious impacts on wildlife because of the greater importance of critical habitat and presence of more sensitive species in these areas. The likelihood of an adverse impact occurring in any particular locations depends on the intensity of oil and gas activity, including length of time that operations occur, sensitivity of the environment, cumulative disturbance that a wildlife species has been subjected to previously, and implementation of mitigating measures. Areas that include habitat used by threatened or endangered species are especially sensitive to disturbance and may require special evaluation to determine how development can proceed in the least intrusive manner.

Streams most likely to be adversely affected are Class I and II streams (as classified by the Department of Fish, Wildlife and Parks). These streams tend to support the highest populations of recreationally valued fish and fish species especially sensitive to water quality degradation. Development of roads and other facilities along or near these streams could significantly increase suspended and deposited sediments, thereby reducing habitat and fish populations. Oil, chemical, and drilling fluid spills, even of relatively low volume, could result in adverse impacts on fish populations.

The most effective means of mitigating wildlife impacts are, first, avoiding important habitat, and second, restricting activities in the seasonally important habitats to

nonsensitive times of the year. Seasonal and daily management of traffic on access roads, including road closure, can be an effective way to reduce impacts. Road obliteration is effective in reducing impacts where continued use poses an adverse impact on wildlife. Sedimentation of rivers and streams can be avoided by building roads on nonerodible soil and on gentle slopes as far from water as possible, or by prompt revegetation of disturbed areas.

WATER QUALITY

The primary sources of water pollutants from oil and gas drilling are reserve pit fluids and muds. The main pollutant associated with oil and gas production is produced water, especially when it contains high concentrations of sodium chloride and total dissolved solids. Adverse impacts are most likely to occur when reserve pits and produced water evaporation pits are located close to sources of potable surface water or groundwater, when subsurface soils are porous and therefore do not inhibit leaching and downward migration of fluids, and when the fluids, drilling muds, and produced waters contain elevated levels of salts, trace metals, and total dissolved solids. The potential for contamination of both surface water and groundwater can be greatly reduced by proper siting, construction, maintenance and reclamation of reserve pits and produced water pits, and by appropriate disposal of wastes.

RECREATION AND AESTHETICS

The effects of oil and gas drilling on recreation and aesthetics are often short term and depend to a large degree on drilling location. Exploratory drilling that results in development of a new oil or gas field has the greatest potential to result in long-term, significant impacts on recreation and aesthetics. Aesthetic impacts will be more severe in areas of high scenic quality, high viewer sensitivity to intrusions, and high potential for landscape alteration. Many of the effects from oil and gas development can result from increased access. The relatively minor effects of individual wells may not contribute to greater effects when the new wells are in or near existing oil and gas fields.

Depending on the characteristics of an area, oil and gas activities may have beneficial or adverse effects on recreation and aesthetics. Some recreation activities may be permanently displaced by new and upgraded access roads. Other forms of recreation may increase due to the increased access. The beneficial or adverse effects of development will be determined by the types of changes that occur and the diversity of recreation opportunities present.

Examples of potentially sensitive recreation areas and sites include national, state, and local parks and recreation areas; wild, scenic and recreational rivers; established trail systems; private campgrounds, resorts, and dude ranches; fishing access sites; rivers and streams with high quality fishing; natural areas; and areas with unique habitats. Examples of options that may mitigate adverse effects on recreational use of these areas include establishment of buffer areas around developed recreation sites; restricting oil and gas activity to certain seasons to minimize conflicts; use of natural vegetation and topography to screen oil and gas facilities; siting and construction of roads and other facilities to minimize disturbance of land forms and vegetation; and reclamation of disturbed areas to return them as nearly as possible to natural conditions.

OTHER CONCERNS

LAND USE AND COMMUNITY CONFLICTS

Potential land use impacts primarily consist of conflicts between oil and gas activities and other uses of property such as agriculture and residences. Impacts directly associated with disturbance of the land surface may be relatively easy to mitigate through modification of oil and gas operations around irrigation equipment, and through reclamation. These impacts are usually avoided or reduced through negotiations between the landowner and the company. Indirect effects, such as visual effects and traffic impacts on property near an oil and gas lease, are more difficult to mitigate. For example, residential impacts often involve issues such as residents' annoyance at the changes in the character of their neighborhood, health and safety concerns, and waste disposal.

WEEDS

Disturbance of the surface can often encourage the spread of noxious weeds. Prompt reclamation of disturbed areas and weed control efforts during the time that sites and roads are in use help to mitigate this problem.

CULTURAL RESOURCES

Impacts on historical and archaeological properties or sites have many characteristics in common with recreation and visual impacts (e.g., changes in the quality of visitor experience and changes in integrity of the setting of a historical or cultural property). Further, some cultural sites or objects could be destroyed or impaired. As with recreational and visually sensitive areas, avoidance of known cultural resources or creation of buffer zones around them are most effective in reducing impacts.

PROGRAM ALTERNATIVES

A wide range of program and administrative alternatives could provide options for incorporating environmental review into the Board's rules and drill permit process. Program and administrative alternatives that would assist the Board in fulfilling its environmental review objectives include but are not necessarily limited to the following: (1) collection of data describing proposed drilling operations and locations; (2) development of levels of review and companion procedures to provide for technical review of applications for permits to drill; (3) predrill site inspections where special conditions warrant; (4) where conditions warrant attachment of general and/or site-specific conditions to drilling permits to mitigate adverse impacts; (5) where conditions warrant, consultation among the Board and landowners, land-managing agencies, and other agencies with jurisdiction or expertise concerning environmental resource that might be affected by drilling and production; (6) development of guidelines specifying minimum appropriate practices for various aspects of oil and gas drilling and production in Montana; (7) revision and additions to Board rules to ensure availability of sufficient information to conduct environmental review and to assist in implementing appropriate mitigation; (8) development of Memorandums of Understanding defining how the Board and other agencies would coordinate their respective responsibilities for oil and gas drilling and production, and for resources affected by these activities; (9) field inspections and enforcement of Board-imposed requirements for drilling and production activities; and (10) training and education for existing Board staff and potential addition of new staff.

The key element to successfully incorporating environmental review into the Board's permitting process is to devise reasonable solutions to site-specific problems on the basis of cooperation, timely sharing of information, and, where necessary, detailed interaction and discussion among

the Board, oil and gas operators, landowners, and other affected parties, and to have rules which provide measures to address commonly occurring problems.

Rule revisions and additions to provide administrative solutions for oil and gas problems would help expedite the drill permit review process by minimizing need for repeated study of individual issues. During the drilling phase, these revisions would pertain to: (1) siting and construction of drill locations; (2) reserve pit construction, liner specifications, and reclamation; (3) health and safety considerations; (4) site reclamation; and (5) air quality.

Rule changes governing the production phase could include: (1) produced water evaporation pit design and reclamation, and (2) air quality.

A three-level review process summarized in Table 1 would be used in evaluating drill permit applications. This process would rely on an environmental checklist to help determine the necessary level of review for each individual drilling permit. A revised drill permit application form would assist the staff in completing the checklist.

Based on the data obtained from the application and that collected by the Board staff, each individual drill permit would be evaluated to determine the appropriate level of review (see Table 1).

The effectiveness of the staff and Board in identifying environmentally sensitive drilling proposals and conducting the appropriate level of review would be enhanced by addition of an environmental staff position and the development of cooperative review and coordination agreements with state and federal agencies.

TABLE 1
LEVELS OF ENVIRONMENTAL REVIEW FOR OIL AND GAS WELLS

Possible Levels of Board Review	Administrative Components	Examples of Possible Well and Site Characteristics that Define this Level of Review ¹	Estimated Annual Percent of Wells Likely to Qualify for this Level of Review ²	Estimated Time Required Requird by Board to Complete Permit Process ³
LEVEL I Standard Drilling Operation	a) Operator submits drill permit application form and supplemental information. b) Staff prepares checklist; c) Staff may attach permit conditions.¹	a) drilling and waste disposal plans are clearly in compliance with Board rules. b) Adequate data is available to allow the staff to identify possible problems and effective mitigating measures based on a brief desk review.	85% - 90%	1 - 2 days
LEVEL II ⁴	a) and b) same as Level I c) Staff consultation with other agencies d) Staff may determine that documentation in addition to the checklist is necessary to explain its decision and any mitigating measures that are deemed necessary. e) Staff will likely attach site-specific permit conditions, which could include a special stipulation that discovery of a commercially producible reservoir will necessitate further environmental review before further development may proceed	a) Specific characteristics of target formation(s) may be uncertain or unknown; b) Sensitive environmental features or constraints present; interagency consultation is necessary to identify environmental impacts and appropriate mitigation.	9% - 14%	10 - 30 days ⁵
LEVEL III ⁴	Board determines that a detailed environmental assessment or environmental impact statement is necessary, involving extensive interagency consultation, site-specific field study, and inter-action with the applicant.	Sensitive environmental features are present; serious environmental problems could occur; more detailed information and analysis needed.	1%	6 months - 1 year

¹ Compliance with applicable, revised Board rules is assumed for all drilling operations.

² If the Board defers to environmental review conducted by other agencies when drilling occurs on federal or state-owned land or minerals, these wells would be excluded from the estimates.

³ The estimated time requirements are based on the following assumptions: (a) that the Board has developed rules/guidelines specifying minimum acceptable practice for drilling and production operations; (b) that the information described in Figure Application Form is readily available; (c) for Levels II and III that the Board has established consulting relationships with other agencies; and (d) that the Board has adequately trained staff and that the workload allows staff to begin review the same day an application for a permit to drill is received.

⁴ The primary difference between Levels I and II is the amount and quality of information available and the level of uncertainty about whether adverse environmental impacts would occur. The likelihood that Level II or Level III review would be necessary is primarily based on the types and number of sensitive environmental features in an area and the seriousness of environmental impacts that are considered likely to occur.

⁵ If interagency consultation can be accomplished by telephone, the time required for review could potentially be reduced to 2 or 3 days. The estimates assume that procedures would be established to ensure timely response to Board requests for consultation. If there are interagency disagreements about the nature of environmental impacts, mitigation, and strategies to address problems, additional time would likely be required to complete the permitting process.

CHAPTER THREE

TECHNICAL CORRECTIONS TO THE DRAFT PEIS

This chapter presents changes made since publication of the draft PEIS. These changes have been made as: (1) technical corrections of errors discovered; (2) changes in tone or presentation that the Board believed to be necessary; and (3) clarification or explanation of analysis in the draft. Changes described in this chapter revise or supplement the

referenced pages and text of the draft PEIS. A later chapter will describe and discuss changes made to Chapter Five - Program Alternatives, including the process recommended for adoption by the Board to meet the requirements of Senate bills 184 and 201.

INTRODUCTION

Change: Page 2, right column, second to last line of the first paragraph. Remove the word “allowing” and substitute “ensuring.”

Rationale: The change was made to reflect the Board’s concern that incorporation of MEPA into the drill permit review not delay the approval of the vast majority of drill permits.

Change: Page 5, right column, delete discussion of “Net Proceeds Tax,” add the following:

“NET PROCEEDS/LOCAL GOVERNMENT SEVERANCE TAX

A severance tax levied by local governments based on gross sales proceeds. The rate of the tax, its distribution

within the county where the production occurred, and whether it is called net proceeds or local government severance tax depends on whether the well came into production before or after July 1, 1985. It is the single largest tax levied against oil and gas production.”

Rationale: This change clarifies tax collection policy not fully explained in the draft PEIS.

Change: Page 8, Figure 5. Replace previous Figure 5 with updated Figure 5.

Rationale: Change provides additional data on well drilling activity during 1988 not available at the time of release of the draft PEIS.

OIL AND GAS DRILLING AND PRODUCTION OPERATIONS

Change: Page 15, left column, paragraph 4. After “operations” on line 1, add “that may be.” At the end on the first sentence, add the following statement: “Actual operations for each well will vary on a case-by-case basis because of changes in surface and reservoir constraints.”

Rationale: Change made in response to comments to provide recognition that oil and gas operations may vary in exact detail from those presented in the draft PEIS.

Change: Page 19. Substitute revised Figure 11 for the one printed in the draft PEIS.

Rationale: Change made in response to comments to acknowledge that phases of activity depicted in the figure are oversimplified for purposes of illustration.

Change: Pages 21, 22, and 23. Replace figures 12, 13, and 14 with new ones.

Rationale: Change made in response to comments to acknowledge that some variation in well drilling location layout usually occurs. Figures may not correspond exactly to individual drilling locations.

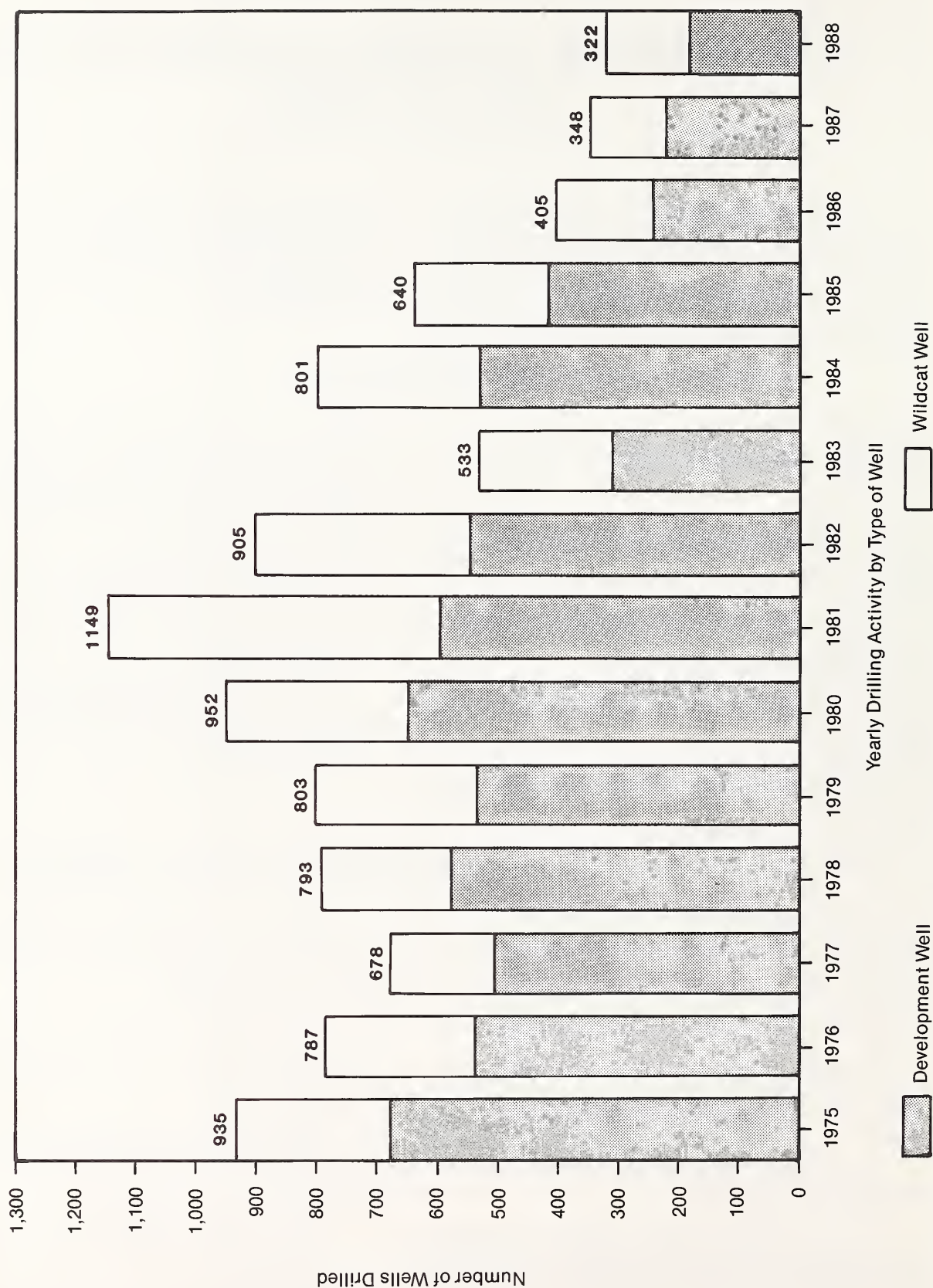
Change: Page 36, right column, 3rd paragraph, 3rd line. Remove the words “are the first choice, due to” and insert “offer.”

Rationale: Change was made in response to written comment that electric motors may not always be equipment of first choice.

Change: Page 37. Replace Figure 22 with revised one.

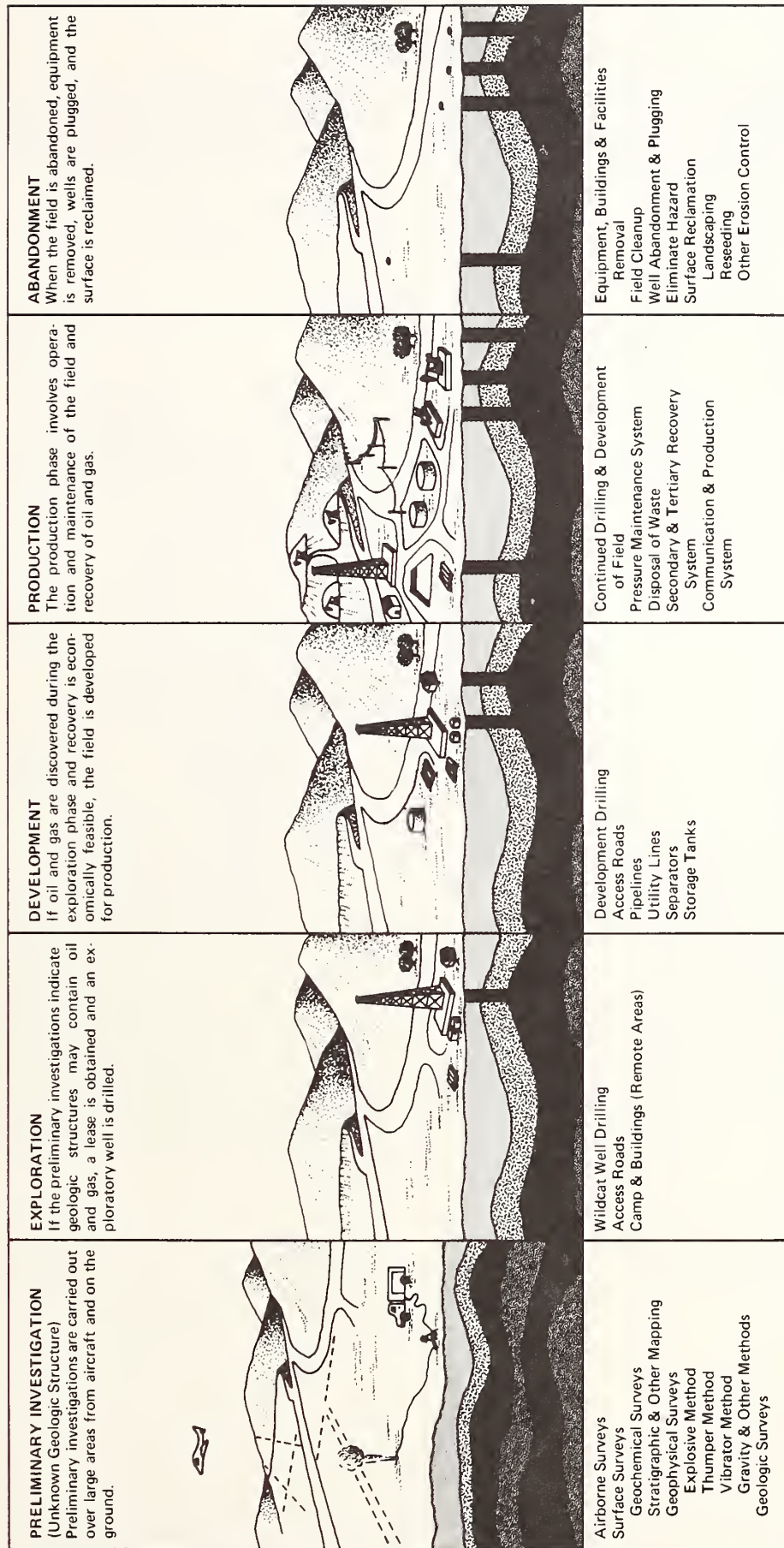
Rationale: Change made to indicate some minor variations will likely exist with actual equipment used for individual production locations.

FIGURE 5
MONTANA DRILLING ACTIVITY BY TYPE OF WELL



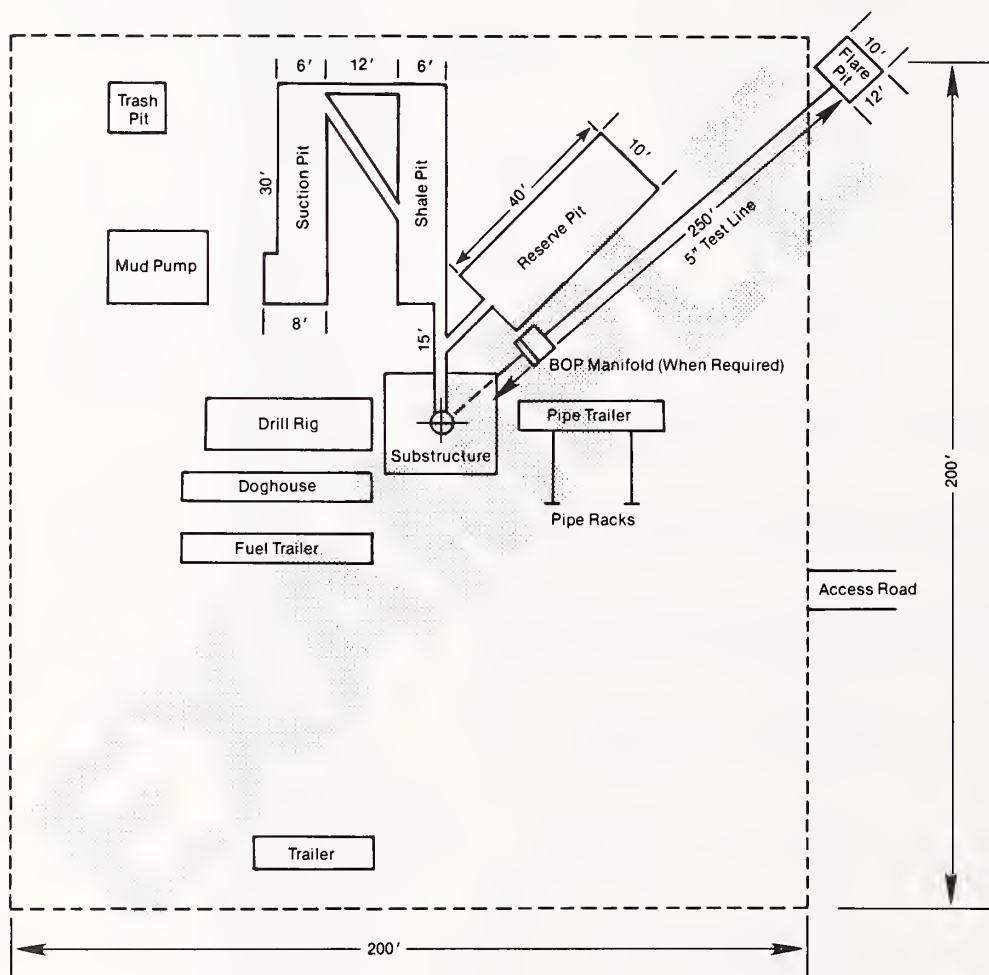
SOURCE: MONTANA OIL AND GAS ANNUAL REVIEWS 1975-1987

FIGURE 11
POSSIBLE SEQUENCE OF OPERATIONS
WHERE DISCOVERY LEADS TO DEVELOPMENT OF AN OIL FIELD



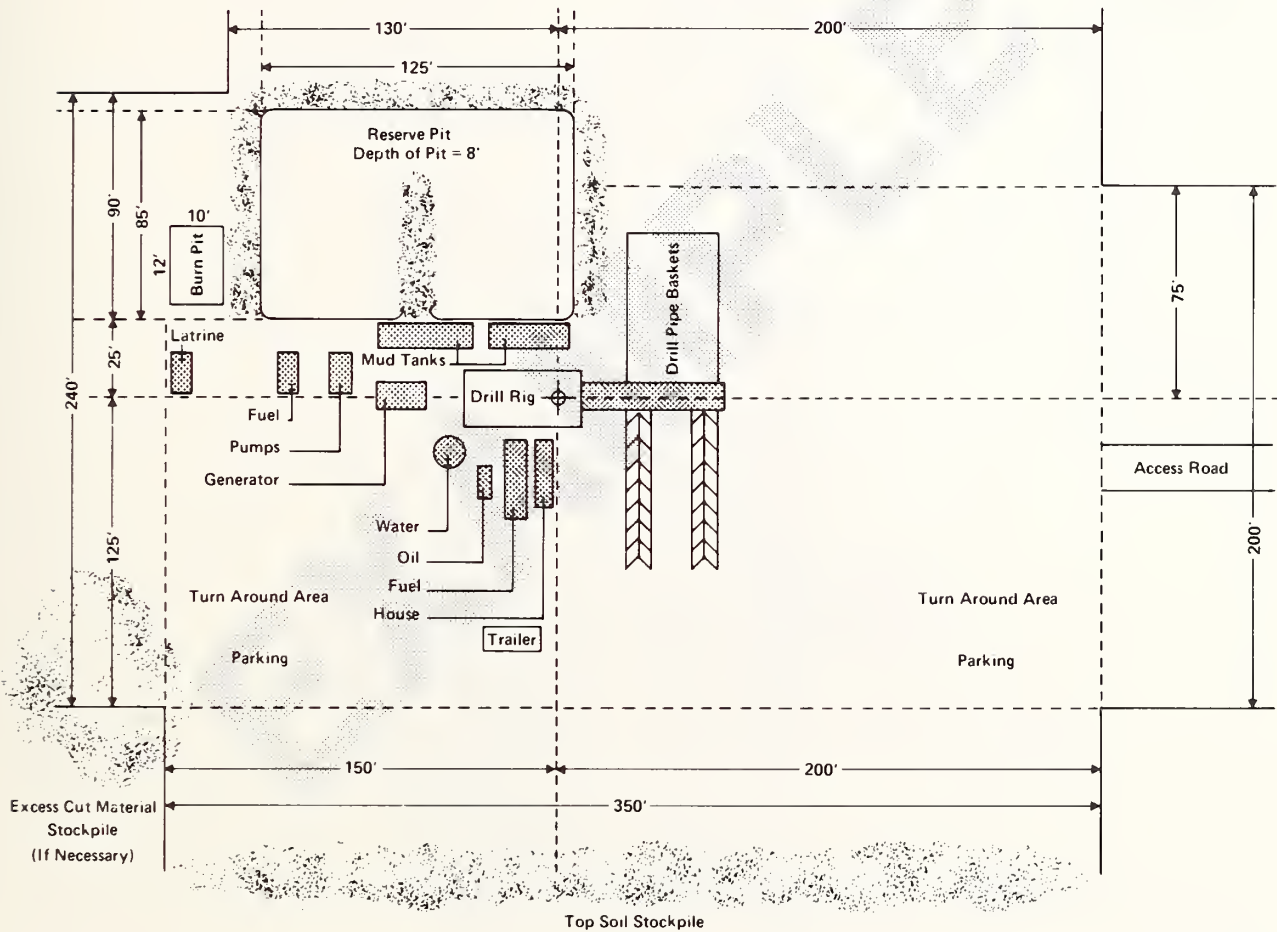
Source: BLM 1986, Pinedale RMP

FIGURE 12
LOCATION LAYOUT FOR A WELL UP TO 3,500 FEET DEEP



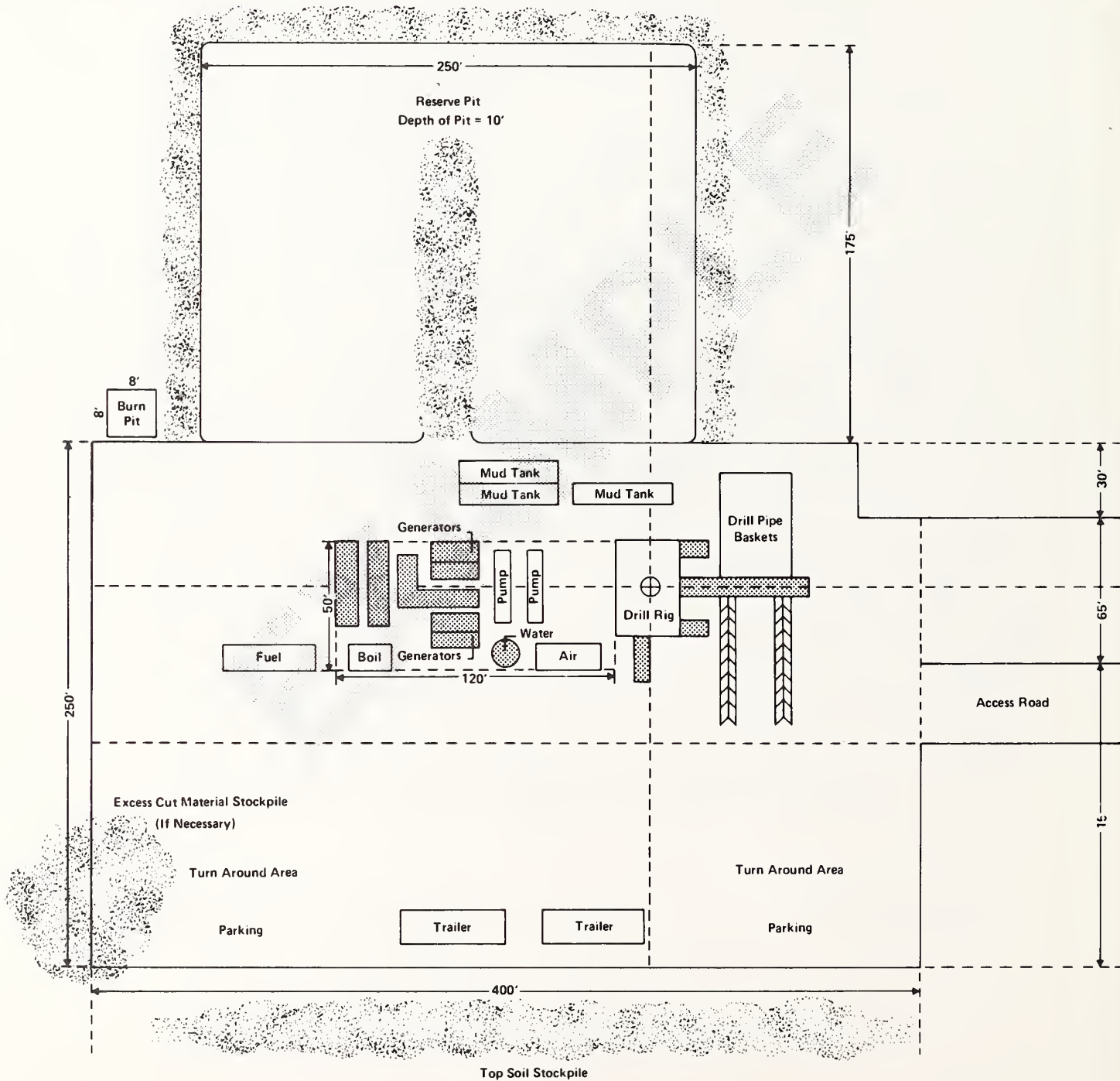
SOURCE: BLM, 1988

FIGURE 13
LOCATION LAYOUT FOR A WELL 6,000 TO 9,000 FEET DEEP



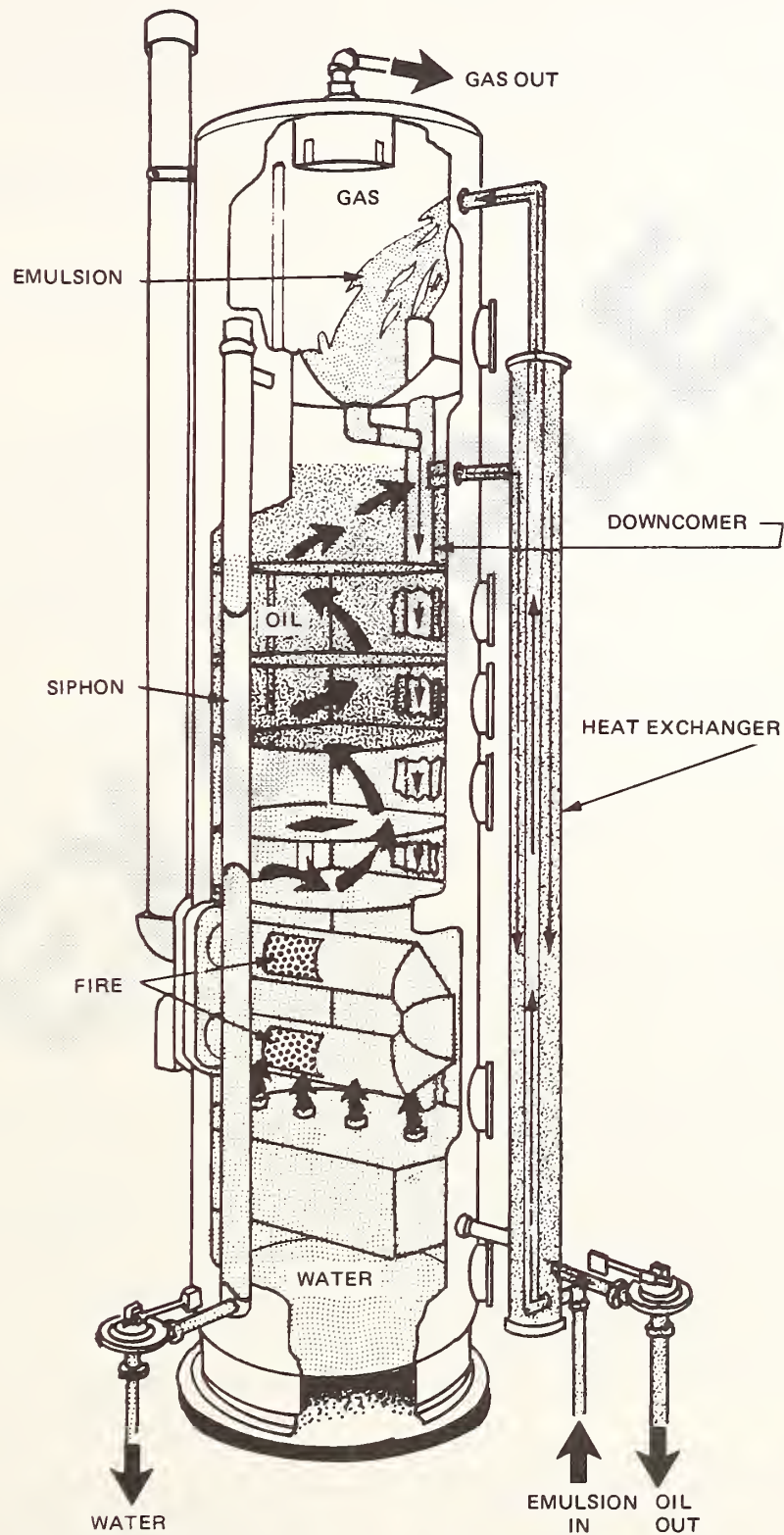
SOURCE: BLM 1980

FIGURE 14
LOCATION LAYOUT FOR A WELL 9,000 TO 15,000 FEET DEEP



SOURCE: BLM 1980

FIGURE 22
CUTAWAY VIEW OF VERTICAL HEATER-TREATER



Source: PETEX, 1982. Fundamentals of Petroleum.

ROLES AND RESPONSIBILITIES FOR OIL AND GAS ACTIVITIES

Change: Page 46, right column, under heading U.S. Forest Service. At the end of the first sentence, add "using processes similar to the BLM." Change lines 5 and 6 as follows: after the word "responsibility," the sentence should read "for issuing leases and drilling permits."

Rationale: Changes made to reflect current practice and procedure under the 1987 Onshore Oil and Gas Leasing Reform Act.

Change: Page 47, Table 1, Item 5, Other Requirements: Forest Service. Reference to Forest Service Manual should be 2860 rather than 2812.2.

Rationale: Change is editorial.

Change: Page 48, left column, paragraph 4 regarding bonding is deleted.

Rationale: A new mechanism for bonding oil and gas wells was established by the 1989 Legislature. This program is briefly discussed under the section New Information.

Change: Page 58, right column. First sentence under U.S. Forest Service should be deleted and replaced with the following: "The Forest Service reviews and approves the surface-use plan of operations prior to BLM issuance of an

APD affecting Forest Service lands. This review occurs consistent with the provisions of NEPA and procedures set forth in BLM's Onshore Oil and Gas Order Number 1. Individual and cumulative effects are considered for the drilling or subsequent development proposal (Sundry Notice). The Forest Service determines if such actions are consistent with the management direction given in the relevant Forest Plan or other supporting environmental documents."

Rationale: Change reflects current practice and procedure following passage of 1987 Onshore Oil and Gas Leasing Reform Act.

Change: Page 60, right column. Before heading "ENVIRONMENTAL PROTECTION AGENCY," add new section:

U.S. FOREST SERVICE

In response to recently enacted legislation, the Forest Service is currently in the process of drafting regulations (36 CFR 228E) which will detail the measures required during production and abandonment activities for federal minerals underlying lands of the national forest system. These provisions are similar to those adopted by the BLM. Compliance inspections are conducted in a coordinated manner by both FS and BLM personnel."

DESCRIPTION OF IMPACTS AND MITIGATING MEASURES

Change: Page 63, right column. Following first paragraph, add a new paragraph:

"The question of whether a particular drilling proposal would result in adverse impact and thereby trigger detailed review under MEPA is a question to be determined on basis of the facts surrounding each individual permit. Under MEPA, the Board has an obligation to consider and disclose adverse impacts associated with a drilling proposal. The authority to require or impose mitigation measures may rest not with the Board but with another state or federal agency, local government, the landowner, or owner. Further, the oil and gas operator is likely to play an important role in the design of environmentally compatible drilling projects. The intent of Senate Bill 184 is to establish an efficient and timely process whereby the Board can review and evaluate individual drilling permits in compliance with MEPA and in consideration of the relevant factors present at the individual drilling location."

Rationale: Change was made in response to comments regarding authority to require mitigation for adverse impacts and is intended to clarify that the technical measures discussed in Chapter Four are proven effective in reducing impacts and that no additional implications should be attached to them.

Change: Page 77, left column. Change first sentence under heading "Slope Angle" by replacing the words "be limiting to" with the following "will require careful design and construction techniques for."

Rationale: Change made in response to comments to better reflect additional consideration in areas of steep slopes.

Change: Page 77, right column, first paragraph under heading "Geological Constraints" is deleted.

Rationale: Change made in response to comments to remove language with negative tone and connotations regarding lack of prudence and care taken by industry in site design and construction.

Change: Page 80, Table 5 is replaced with new Table 5 and accompanying text. Changes are described in section titled New Information.

Rationale: Changes reflect new information available since publication of the draft EIS.

Change: Page 94, right column, second paragraph. Reference (Smith 1988) should be (Smith 1988a).

Rationale: Change is self-explanatory.

Change: Page 96, left column, last paragraph. On line 6 delete the word “separators” from item (3). On line 7, item (4), before the word “storage” add “separators and.”

Rationale: Changes reflect technical correction to the draft PEIS.

Change: Page 97, replace Table 13 with new table.

Rationale: Changes represent technical corrections and additions to the draft PEIS.

Change: Page 98, replace Table 14 with new table.

Rationale: Changes reflect addition of material regarding sulfur dioxide.

Change: Page 98, right column. Concentrations of sulfur dioxide based on cited studies should be revised as follows: line 5, change “50 ppm” to “0.50 ppm”; line 6, change “100 - 500 ppm” to “50 to 100 ppm”; line 7, change “1,000 to 5000 ppm” to “400 to 500 ppm.”

Rationale: Changes represent corrections necessary to the draft PEIS.

Change: Page 103, Table 18, under Hydrogen Sulfide: Oil - Gas wells. Change line 5 by deleting the word “separators”; change line 7 by adding, “and separators.”

Rationale: Change reflects technical correction to the draft PEIS.

Change: Page 103, left column, line 1. Under heading “PRODUCTION,” change the word “volume” to “amount.”

Rationale: Change reflects technical correction to the draft PEIS.

Change: Page 105, Figure 32, is replaced with new figure.

Rationale: Changes represent technical corrections of errors made in printing of the draft EIS.

Change: Page 108, left column, paragraph four, line one. Following “Montana” the next word is “have.”

Rationale: Change corrects typographical error in draft.

Change: Page 112, right column, paragraphs 3, third and fourth sentences. From bottom of paragraph, delete the words “adjacent to the Rocky Mountain Front”; add the following “located southeast of the Wyoming Mountain Range.”

Rationale: Change made in response to comment to avoid confusion about location of field created in the draft PEIS.

Change: Page 114, right column, second sentence is changed as follows: line 2 after “project,” insert “which was planned”; delete “with approximately,” add, “proposed”; on line 4, change “would require” to “would have required.”

Rationale: Change, made in response to comment, reflects the project as proposed rather than as constructed.

Change: Page 121, left column. After end of first paragraph, add the following new paragraph:

“Impacts to fish and aquatic organisms of the Riley Ridge project were predicted prior to construction and operation of the project. Monitoring data collected by consultants for the company during operation of the project indicate that:

- 1) increased levels of total suspended solids and other water quality parameters were not correlated with oil and gas activities;
- 2) species diversity of aquatic insects was not affected by oil and gas activities, and
- 3) trout populations and fish habitat were not reduced by oil and gas activities.

Change: Page 126, Table 24. Headings for columns 2 and 3 are revised as follows:

Column 2	Unmitigated Source Noise Level ¹
Column 3	Unmitigated Noise Impact Distance ¹ for 55 dba level ²

Rationale: Changes represent technical correction to the draft PEIS.

Change: Page 128, right column, paragraph 4. Delete last sentence and replace with the following: “In remote fields where electricity is not available, muffler-equipped gas engines are a feasible alternative.”

Rationale: Change made to remove negative tone regarding options for noise mitigation.

Change: Page 134, right column, last paragraph. End last sentence after the word “concern.”

Rationale: Change made in response to comment to avoid misinterpretation.

Table 14. Summary of Sources and Types of Air Pollutants from Oil and Gas Activity.

Pollutant	Drilling Sources	Production Sources	Storage Sources
Particulates (TSP/PM-10)	-site preparation and construction activities -diesel engine exhaust -access road dust	-fugitive dust from access road traffic -diesel engine exhaust	
Carbon Monoxide (CO)	-diesel engine exhaust -light duty vehicle exhaust	-light duty vehicle exhaust	
Sulfur Dioxide (SO ₂)	-diesel engine exhaust	-sour gas flaring -sour gas used on location	
Nitrogen Oxide (NO _x)	-drilling rig diesel engine exhaust -other vehicular traffic exhaust	-diesel engine exhaust -vehicular engine exhaust	
Hydrogen Sulfide (H ₂ S)	-sour well gas venting -drill stem tests -gas/oil ratio (GOR) tests -production stabilization tests -uncontrolled (blow out)	-flaring (incomplete combustion) -fugitive losses from pipes, pumps, seals, flanges, etc. -sour oil disposition	storage tanks - oil/water -breathing losses -working losses
Total Reduced Sulfur (TRS) compounds	-venting and flaring sour gas release	-sour gas venting and flaring -incomplete sour gas combustion	-storage tank working and breathing losses
Volatile Organic Compounds (VOCs) (nonmethane)	-drilling rig diesel engine exhaust	-light duty vehicle exhaust -diesel engine exhaust	-storage tank vaporization of crude oil condensates, distillates, etc.

Source: Compiled by Jim Hughes, DHES.

Table 13. Montana and National Air Quality Standards.

Pollutant	Montana Standard	Federal Primary Standard	Federal Secondary Standard
Deeply inhalable particulates (PM 10+)	50 ug/m ³ annual average 150 ug/m ³ 24-hr average*	50 ug/m ³ annual average 150 ug/m ³ 24-hr average*	None
Sulfur Dioxide	0.02 ppm annual average 0.10 ppm 24-hr average* 0.50 ppm 1-hr average**	0.03 ppm annual average 0.14 ppm 24-hr average*	0.5 ppm 3-hr average*
Carbon Monoxide	9 ppm 8-hr average* 23 ppm 1-hr average*	9 ppm 8-hr average* 35 ppm 1-hr average*	9 ppm 8-hr average*
Nitrogen Dioxide	0.05 ppm annual average 0.30 ppm hourly average*	0.05 ppm annual average	0.05 ppm annual average
Photochemical Oxidants (ozone)	0.10 hourly average*	0.12 ppm 1-hr average*	0.12 ppm 1-hr average*
Lead	1.5 ug/m ³ 90-day average	1.5 ug/m ³ calendar quarter average	None
Foliar Fluoride	35 ug/g grazing season average 50 ug/g monthly average	None	None
Hydrogen Sulfide	0.05 ppm hourly average*	None	None
Settled Particulate (dustfall)	10 gm/m ² 30-day average	None	None
Visibility	Particle scattering coefficient of 3x10 ⁻⁵ per meter annual average***	None	None

Key: PM10 = particulate matter with an aerodynamic diameter less than 10 microns.

ug/m³ = micrograms pollutant per cubic meter of sampled air.

ppm = parts pollutant per million parts of sampled air.

+Statistical standards based on three years of data.

*Not to be exceeded more than once per year.

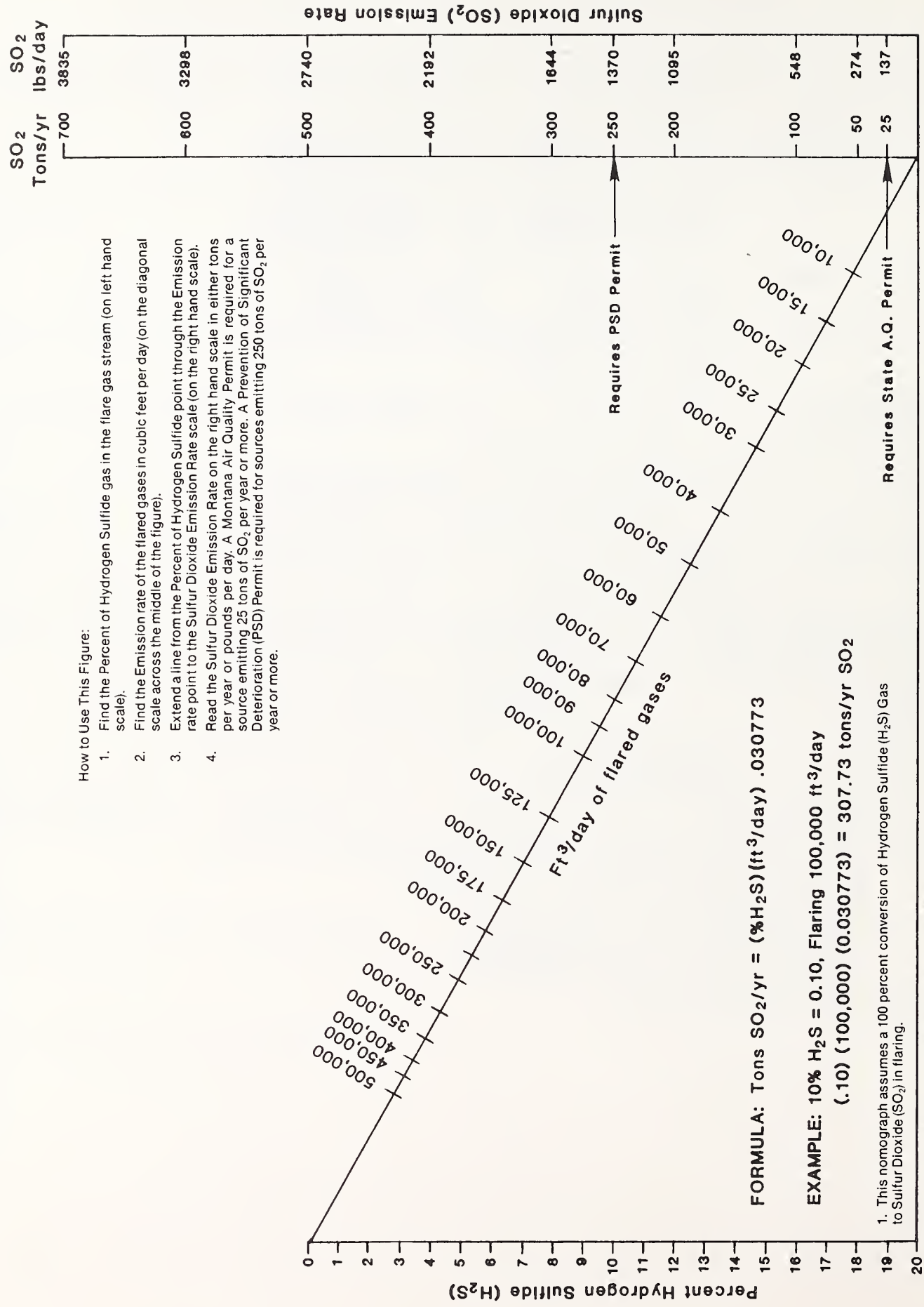
**Not to be exceeded more than 18 times per year.

***Applies to PSD mandatory Class I areas.

Source: ARM 16.8.101 through 1602

Figure 32

SULFUR DIOXIDE EMISSIONS FROM THE FLARING OF HYDROGEN SULFIDE GASES¹



SOURCE: Montana Air Quality Bureau, 1982

Change: Page 137, left column, second paragraph, second line. Delete "the nature of viewers" and replace with "viewer." Add new sentence after the word "variables" on line 3 which reads: "Visual impacts also can be greater in areas where large numbers of viewers are closer to project development, particularly where viewers are more sensitive to intrusions." On lines 6, 7 and 8, delete remainder of sentence following the word "between" and insert these words: "disturbed and undisturbed soil."

Rationale: Changes reflect technical correction made to the draft PEIS.

Change: Page 137, left column, fifth paragraph. Delete sentence on lines 5, 6 and 7 that begins and ends as follows: "When drilling activities...impact may exist."

Rationale: Change reflects technical corrections of the draft PEIS.

Change: Page 138, left column, second line from top of page. After the word "uses," "project" is misspelled and is corrected.

Rationale: Change is self-explanatory.

Change: Page 138, left column, second line under section on Vegetation. Reference cited should be "Payne 1973"; same change applies to reference cited on Figure 37.

Rationale: Change is self-explanatory.

Change: Page 141, Table 27. The scientific name for Dalmation toadflax should be spelled "Linaria dalmatica."

Rationale: Change is self-explanatory.

Change: Figures 38 and 40. Under "source," delete reference to Weed Lot Data Base.

Rationale: Change is self-explanatory.

Change: Page 149, first paragraph under Special Status Plants. At start of paragraph, add the word "No."

Rationale: Change reflects technical correction to the draft PEIS.

Change: Page 150, Table 30. Replaced with revised table.

Rationale: Change reflects technical corrections to the draft PEIS and clarification desired by the Board.

Change: Page 151, Table 31. Spelling error exists in title; "occurance" should be "occurrence." Also, reference is incorrect; change "National" to "Natural."

Rationale: Change is self-explanatory.

Change: Page 152, left column, first paragraph, line 2. Remove following words: "disturbed vegetation. Vegetation" and insert "vegetative productivity. Productivity...." On line 3, remove "to original condition."

Rationale: Change is technical correction to the draft PEIS.

Change: Page 153, right column, under heading "MITIGATION," item number 1, end of line 5. "thistype" should be "this type"; Item 1(c), delete the word "goal", insert "schedule"; Item 5, line 2, change "roadsshould" to "roads should"; Item 7, end of line, "asfeasible" reads "as feasible."

Rationale: Changes are self-explanatory.

Change: Page 154, left column, item 14, line 3. "stablish" should read "established."

Rationale: Change is self-explanatory.

LIST OF PERSONS PREPARING THE EIS

Change: Page 215, under Project Direction: Chuck Wassinger is Staff Director of Minerals and Geology, rather than Deputy Forester as stated in the draft PEIS.

Change: Page 216, the following persons were inadvertently left off the list of persons contributing clerical, editorial, and cartographic assistance to the draft PEIS:

Gordon Taylor, Chief, Cartography Bureau
document review and layout
June Virag - maps and figures
Don Howard - maps, figures and layout
Barbara Lien - layout and typesetting

OIL AND GAS REFERENCES

Change: Page 244, the reference to Joan Wiedeman as Glacier County Commissioner is incorrect. Ms. Wiedeman

is President, Cut Bank Chamber of Commerce.

Table 30. Plant Species in Montana that are Candidates for Listing under the Endangered Species Act

<u>Candidate Species Scientific Name</u>	<u>Common Name</u>	<u>Also U.S. Forest Service Sensitive Species</u>	<u>Expected or Known Occurrence</u>
1. <u>Antennaria aromatica</u> ¹	Aromatic pussy-toes	yes	High mountain ranges in western Montana, such as Absaroka, Madison, Pioneer, and Rocky Mountain Front.
2. <u>Arabis fecunda</u>	Sapphire rockcress	No	Steep slopes of sagebrush/grassland communities in Sapphire Mountains, Ravalli County.
3. <u>Aster mollis</u> ²	None	No	No specific information.
4. <u>Astragalus barrii</u>	Barr's milkvetch	Yes	Known to occur in Rosebud, Big Horn, and Powder River Counties. Historically known in Carter County.
5. <u>A. scaphoides</u>	Bitterroot milkvetch	No	Occurs in sagebrush/bunchgrass communities in southwest Montana.
6. <u>Botrychium crenulatum</u>	Wavy moonwort	No	Moist habitats in the Swan Valley, Montana.
7. <u>B. paradoxum</u>	Peculiar moonwort	Yes	Deerlodge, Glacier, Pondera, and Flathead Counties.
8. <u>Calamagrostis tweedyi</u>	Cascade reedgrass	Yes	Forested and clearcut areas in Mineral County.
9. <u>Carex lenticularis</u> var. <u>dolia</u>	Goose-grass sedge	No	High elevation, wet meadows, and lake shores in Glacier National Park in northwest Montana.
10. <u>Claytonia lanceolata</u> var. <u>flava</u>	Yellow springbeauty	Yes	Moist Montana meadows in Deerlodge, Gallatin, Silver Bow, Powell, and Beaverhead Counties.
11. <u>Erigonum lagopus</u>	Rabbit wildbuckwheat	No	Barren hills in the Pryor Mountains of Carbon County and possibly Big Horn County.
12. <u>Grinella howellii</u>	Howell's gumweed	Yes	Coniferous forest openings in western Montana.
13. <u>Howellia aquatilis</u>	Howellia	Yes	Shallow glacial potholes and river oxbow pools in the Swan Valley.
14. <u>Penstemon lemhiensis</u>	Lemhi beardtongue	Yes	Sagebrush grassland and forest edges in southwest Montana.
15. <u>Rorippa calycina</u>	Persistent sepal yellowcress	No	Alluvial areas, sandy river banks and shores. Known or suspected to occur in southeast Montana and McCone and Cascade Counties.
16. <u>Shoshonea pulvinata</u>	None	Yes	Limestone substrates and gravelly soils along ridge tops and barren areas in the Beartooth and Pryor Mountains.
17. <u>Silene spaldingii</u>	Spalding's silene	No	Grasslands of the Flathead Valley and Lincoln County.
18. <u>Trisetum orthochaetum</u>	Bitterroot trisetum	No	Boggy meadows in Bitterroot Mountains of Missoula County.

¹Antennaria aromatica was recommended for removal from the list (October 1987). The Montana Natural Heritage Program believes the species is more abundant than was previously thought.

²Aster mollis was recommended for removal from the Montana list (1987). The Montana Natural Heritage Program has no records for this species in Montana.

Source: Compiled by Scott McCollough, DNRC, after Montana Natural Heritage Program, 1988.

Note: These plant species are candidates identified by the U.S. Fish and Wildlife Service. Some land management agencies have developed policies to protect these species but at the present time these plant species are not protected under the Endangered Species Act. Regarding a permit to drill from the Board, no site inspection is now required to identify whether a species is present at a drilling location and no special mitigation measures are now required.

CHAPTER FOUR

COMMENTS AND RESPONSES

INTRODUCTION

A 105-day comment period (January 31, 1989, to May 12, 1989) was provided following publication of the draft PEIS.

Three public meetings were held on the draft PEIS. The meetings began at 7 p.m. on February 22 in Billings, March 1 in Sidney, and March 8 in Great Falls. Twenty-nine people attended the Billings meeting and six people spoke. Twenty-four people attended the Sidney meeting and seven of them presented comments. Twenty-seven people attended the Great Falls meeting, nine of them presenting comments. Both the Billings and Great Falls meetings were dominated by industry persons who generally spoke negatively toward the draft PEIS, but did not offer specific suggestions for changes except that the draft be rejected. In contrast, the Sidney meeting was dominated by owners of land and minerals. They generally spoke in favor of the draft PEIS. Their support for the industry was evident, but they also expressed concerns about problems experienced with development in the area including hydrogen sulfide, damage to water wells, and other water contamination problems. Several comments were received regarding addition of certain landowner oriented questions to the checklist and drill permit application form.

A total of 38 letters of comment were received during the comment period. A rough breakdown of the comments by origin would be:

Industry	13 letters
Local Government and Associations	7
Interested Individuals	11
Federal Agencies	3
Conservation Organizations	5

While some substantive comments were received on Chapters 1-4, the majority of comments questioned the need for the process discussed in the draft PEIS Chapter Five and how it would be implemented. The main areas of comment include: suggestions for measures to address water quality, waste disposal, reclamation, air quality, and produced water issues; technical changes, corrections, and possible additions to the draft PEIS; future role of land and mineral owners in the process; perceived infringement on private property rights; perceived adversarial tone in the draft PEIS chapters 4 and 5; perception that the MEPA process equals new burdens and unnecessary regulation; clarification of the environmental review process to be used; questions about the authority of the Board to require mitigation versus the obligation to disclose impacts; and need for coordination agreements to remove duplication in federal and state well review and permitting.

COMMENTS AND RESPONSES

The following sections present written and oral comments and responses to substantive issues raised in them. Comments are reprinted on the left-hand portion of the fol-

lowing pages while any necessary responses are located on the right-hand side of each page.

Industry Comments

RECEIVED

MAR 31 1989

MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION



CENEX • Post Office Box 21479 • 2220 Grant Road • Billings, Montana 59104 • (406) 656-4343

March 30, 1989

Mr. Kevin Hart, Project Manager
Department of Natural Resources
and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

COMMENTS
DRAFT PROGRAMMATIC EIS
OIL AND GAS DRILLING AND PRODUCTION IN MONTANA

The following comments are submitted in response to the Notice of January 31, 1989 regarding the publication of the Draft Programmatic EIS on Oil and Gas Drilling and Production in Montana (DEIS). The Notice provided for public review of the DEIS with the comment period ending March 31, 1989.

It is our opinion that the DEIS is seriously flawed because it fails to clearly address the issue of the authority of the Board of Oil and Gas Conservation. The document is misleading as to how far that authority extends. It fails to provide any support as to why the Board's authority should be extended beyond the limits currently exercised by the Board. The document also fails to provide any support for the recommendation that the Board perform the same environmental analyses required of other agencies under NEPA and MEPA - agencies which have full authority over oil and gas operations on public lands.

These comments will be limited to the issue of Board authority. Because we believe this issue deals a fatal blow to the DEIS, demanding a complete rewrite of at least Chapters 4 and 5, we will not address other serious issues of concern with the DEIS.

We do not believe the DEIS has met any of the six requirements as mandated by SB 184. Since our comments are directed only to the issues of Board authority, our primary focus will be on three of those categories of information to be included in the Programmatic EIS as mandated by SB 184:

- (ii) such methods of accomplishing drilling and production of oil and gas as may be found to be necessary to avoid permanent impairment of the environment or to mitigate long-term impacts...;

Cenex objects to the draft PEIS for its failure to address the Board's authority to require mitigation of adverse environmental effects from oil and gas drilling.

The PEIS is intended to address the six items specified by the Legislature. It is meant to provide a method of compliance with MEPA in the issuance of drilling permits without unduly delaying the permit process. It is not a catalog of the Board's authority to impose conditions and restrictions on drilling activities.

It would be unwise to attempt to compile such a catalog in the abstract, since consideration of specific problems is best done on a case by case basis. Further, the Board's responsibility and obligations under MEPA to analyze and disclose impacts and alternatives, including the discussion of mitigation, is not limited or reduced by the Board's authority or lack of authority to require or enforce mitigation measures. It should be noted, however, that Section 82-11-111(2)(a), MCA gives the Board the power to "require measures to be taken to prevent contamination of or damage to surrounding land or underground strata caused by drilling operations and production, including but not limited to regulating the disposal or injection of water and disposal of oil field wastes." Whether this language gives the Board substantive power to protect what MEPA describes as "unquantified environmental amenities and values" is a question the Board will examine on a case-by-case basis.

Cenex discusses four points in support of its comment. These points and their relevance to the requirements imposed on the Board by Senate Bill 184 are discussed below.

- (iii) the process that will be employed by the board of oil and gas conservation to evaluate such environmental impacts of individual drilling proposals as may be found to exist; and
- (iv) a record of information and analysis for the board of oil and gas conservation to rely upon in responding to public and private concerns about drilling and production.

Each of these categories of information must be based on a clear analysis of agency authority or the information is useless. Thus an analysis of mitigation measures necessary to avoid long-term impacts to the environment is of no value and can be misleading if it does not clearly define the authority to require such mitigation measures. The same holds true for a record of information for responding to public and private concerns.

A description of the process to be employed by the Board to evaluate environmental impacts is fatally flawed if it does not examine the authority of the Board to affect the environmental impacts.

Chapters 4 and 5 of the DEIS purportedly include these three categories of information. (See DEIS at 63 and 175.) Neither chapter provides an honest and clear evaluation of existing authority to affect environmental impacts. That authority may reside in the Board, the federal or state agency administering public lands, or the private landowner. But these distinctions are critically lacking in the document.

As a result the DEIS is an ill-considered document which in some areas actually deceives the public as to what remedies are available relative to the impacts of oil and gas activities.

I. The DEIS fails to disclose the assumptions regarding Board authority upon which the recommendations in the DEIS are based.

As stated in the Notice of January 31, 1989 the goal of the Programmatic EIS is to provide a method for the Board to integrate MEPA into its decision-making. In order to do this certain assumptions must be made about the parameters of the Board's authority and the relationship of MEPA requirements to that authority.

The alternatives available to the Board for incorporating environmental review into its rules as set forth in Chapter 5 had to be based on specific assumptions about the Board's authority and its obligations under MEPA. But the authors of the DEIS chose not to reveal these assumptions. Instead, it is stated in the DEIS that the "document cannot resolve existing legal ambiguities concerning either the limits of the Board's authority or the limits of its discretion to address environmental issues." (DEIS at 13 and 180.)

- I) Genex seeks to clarify assumptions used in developing the program alternatives discussed in Chapter Five. It suggests that assumptions about issues such as the interpretation of MEPA as a substantive versus procedural statute or those surrounding Board authority under 82-1-111(2)(a) are inherent in the discussion of options in Chapter Five. These suggestions are mistaken.

The Genex comment tends to confuse two separate issues. One issue is the requirement imposed by MEPA to analyze impacts of an action. This responsibility will require the Board to evaluate areas it has not examined in the past. The second issue is Board authority to require mitigation which the Board will address on a case-by-case basis. It should be noted that questions about the resolution of authority to require measures under 82-11-111(2)(a), MCA should not prevent the development of a process to allow the Board to expediently comply with the review and disclosure aspects of MEPA.

Chapter Five discusses methods and a process that would allow the Board to begin complying with MEPA. At a minimum, this process would include adoption of an environmental checklist to be completed for each drilling proposal. Much of the remainder of the Chapter is devoted to discussing options for shortening the evaluation process by obtaining certain

Granted the document cannot resolve legal ambiguities but nowhere is it explained what those legal ambiguities are. The basic fault of the DEIS is that it fails to clearly describe which interpretations of these so-called "legal ambiguities" the authors followed in recommending options available to the Board as discussed in Chapter 5.

The authors should make it clear whether the recommended alternatives which are said to be available to the Board are based on the assumption that MEPA is purely a procedural statute or on the assumption that MEPA grants substantive authority to an agency beyond that provided in the agency's enabling statute. A meaningful analysis of Chapter 5 cannot be made without this disclosure.

In the area of the Board's authority under its enabling statute, the authors of the DEIS appear to follow a particular interpretation but do so in the DEIS by a rather surreptitious and misleading route.

Although it is not so stated, apparently the authors of the DEIS find as ambiguous the authority granted to the Board under the following statutory provision which provides that the Board shall:

require measures to be taken to prevent contamination of or damage to surrounding land or underground strata caused by drilling operations and production, including but not limited to regulating the disposal or injection of water and disposal of oil field wastes.

82-11-111(2)(a) MCA.

The Board historically and consistently has limited the authority granted under this statutory provision to activities occurring on the wellsite. Issues of access are left to negotiation between the operator and the surface owner. (See DEIS at 13, 51, and 61.) Thus activities at the wellsite, e.g., waste disposal, which may affect surrounding land have been controlled or authorized by the Board while the siting and construction of access roads have not.

In spite of the caveat that the document cannot resolve legal ambiguities regarding the Board's authority, the DEIS recommends alternatives in Chapter 5 which go beyond the historical authority of the Board. In particular, the DEIS recommends various alternatives involving access roads. These alternatives are described as options which are available to the Board (DEIS at 180) implying that such options are within the Board's authority.

If in fact the statutory provision granting agency authority is ambiguous, the interpretation of the statute by the implementing agency should be given full consideration. In this case, the Board's interpretation of its authority is mentioned in the DEIS but is given no consideration.

information from companies as part of the permit application, developing a data base that the Board staff would collect and maintain, and writing rules to provide guidance to operators or to address impacts most likely to result from oil and gas drilling. The Board's goal is to develop a process that is workable and reasonable from this list of options.

If the authors of the DEIS believe it is within the parameters of SB 184 to recommend changes in the Board's authority, it should be made clear in the DEIS that this is exactly what is being done. Any such recommendation must include a description of the factual bases for the recommendation - concrete examples of why the extension of Board authority is required; a listing of those problems which have arisen in the last 56 years of oil and gas activities in Montana which could have and should have been prevented by this extension of Board authority.

II. The DEIS fails to analyze the authority of agencies administering public lands and the NEPA and MEPA compliance, as the case may be, of those agencies relative to oil and gas drilling and production; it fails to provide a factual basis for the conclusion that the Board should duplicate those compliance efforts.

Related to the issue of the Board's authority is the authority of the state and federal agencies which administer public lands. As suggested in Chapter 3 of the DEIS, these agencies, the Bureau of Land Management (BLM), the Forest Service, the Department of State Lands (DSL), and the Department of Fish, Wildlife, and Parks (DFWP) retain control of all activities on the public lands under their jurisdiction. These are the agencies that issue the oil and gas leases and approve drilling and surface operations. These agencies have essentially the same control over activities on their administered lands as a private landowner has over its lands. Thus, by means of a contract with the operator, be it an oil and gas lease, a right-of-way agreement, a surface damage agreement or some other type of agreement, the agency administering the public lands or the private landowner has the means to control essentially all aspects of oil and gas operations on its lands. The ultimate authority of the landowner is to disallow all oil and gas activities on its lands by refusing to issue an oil and gas lease.

In contrast, the Board of Oil and Gas Conservation does not have the broad authority of a landowner; it is a permitting agency. The DEIS fails to clearly make this distinction and as a result the document is misleading and woefully fails to provide a document for the Board to rely upon in responding to public concerns about oil and gas drilling - one of the mandates of SB 184.

In addition, the DEIS fails to take into account the fact that the federal agencies, the BLM and Forest Service, must comply with NEPA in approving leasing and oil and gas operations upon the lands they administer. Similarly, the DSL and DFWP must comply with MEPA with respect to oil and gas activities on state lands.

II) In this comment Genex incorrectly links responsibilities for environmental compliance with issues of land management obligations. Genex does raise a valid concern regarding duplication of environmental review efforts under NEPA and MEPA.

Chapter Three of the draft PEIS adequately describes the roles and responsibilities of state and federal agencies and other parties in oil and gas development. This chapter points out that there are overlapping responsibilities for oil and gas activities in Montana on state and federal lands. The issue becomes how to develop an appropriate mechanism to avoid duplication of effort but ensure compliance with each agency's statutory responsibilities.

The Board believes that environmental review on federal land and minerals as required under NEPA and performed by federal agencies will, in most if not all cases, provide the necessary documentation of impacts required of them under MEPA. The Board may choose to pursue a Memorandum of Understanding with BLM and the Forest Service regarding environmental review of wells involving federal land and minerals. The purposes of this agreement would be: 1) to reduce duplication of environmental review requirements for federal wells; and 2) to coordinate expedient permit approval by the Board for federal wells.

The Board contends that it retains primary responsibility for compliance with MEPA when a well is on state or private land or minerals. However, the Board may pursue appropriate agreements with DSL, DFWP or other state agencies to avoid duplication in environmental review. These agreements would make use of any MEPA analysis these agencies have conducted during the leasing process.

No mention of this is made in that part of Chapter 5 which lists the options available to the Board for addressing environmental problems. For instance, Chapter 5 recommends that the Board adopt rules relating to the siting, construction, maintenance, and reclamation of access roads. Even assuming the Board has such authority, which is questionable, the exercise of such authority would merely duplicate the environmental analyses performed by the federal or state agency which has full authority over the surface use.

In Chapter 5 under the heading "Board Relationships with Other Agencies," it is suggested that the Board expand its Memorandum of Understanding (MOU) with the BLM and establish a similar MOU with the DSL and DFWP for drilling operations on state-owned lands.

It is suggested that the Board could either i) integrate its environmental review process with the process conducted under NEPA or MEPA by the other agency - the BLM, Forest Service, DSL, or DFWP; or ii) defer to the other agency's process by adopting the environmental documents prepared by such agency.

Both alternatives suggest some action on the part of the Board relative to environmental documents prepared by the agencies which administer public lands. There is no need for the Board to take any action in this area. These agencies have primary responsibility for these lands and are bound by NEPA and MEPA requirements. It has to be assumed that the BLM, Forest Service, DSL, and DFWP comply with NEPA and MEPA, as the case may be, with regard to activities on the lands under their jurisdiction.

Thus, it is obvious that with regard to oil and gas activities on state and federal lands, particularly activities which occur off the wellsite, any MEPA responsibilities which the Board may have are preempted either by law or in fact by the agencies administering such lands. Any other interpretation would create needless and wasteful duplication as well as potential administrative conflict.

III. The lack of a clear definition of Board authority creates confusion regarding the processes described in Chapter 5 as available to the Board for implementing MEPA.

A review of the siting and construction options for access roads as discussed in Chapter 5 provides an example of the ambiguities and contradictions which result because the DEIS does not clearly set forth the authority assumptions upon which those options are based.

III) Genex suggested that the uncertainty regarding Board authority creates confusion regarding how the Board would address access road issues.

The options presented under the section titled, "Topics for Potential Board Rule Revision and Guidelines" are presented and discussed only as possible methods for accomplishing drilling and production activities in an environmentally sound and reasonable manner, a requirement found in Section 3(b)(ii) of Senate Bill 184.

Genex points out several areas where wording should be clarified. These are discussed below.

March 30, 1989
Page Six

In discussing access road construction in Chapter 5, it is stated that "there are a number of design principles that oil and gas operators could be required to observe..." (DEIS at 180, emphasis added.) It is suggested that the Board could refer to similar standards published by the BLM and Forest Service to create such guidelines, but that "road use and management on private lands may require a different perspective [sic]." (DEIS at 181.) Are the authors suggesting that the Board after all does not have authority to require access roads on private lands be built to certain specifications? What is the "different perspective" in relation to private lands? If the Board does not have actual authority over access roads on private lands, then it cannot have the authority to implement such guidelines on federal or state lands.

The section on siting and construction of access roads goes on to list various impacts which may result from the siting of the access road. These include among others "(3) land use conflicts such as interference with irrigation equipment and cultivation patterns, impacts on residences; and (4) impacts on recreation and visually sensitive areas." (DEIS at 181.)

By placing this list within the discussion of options available to the Board, are the authors suggesting that the mitigation of these impacts comes under the statutory authority of the Board as "contamination of or damage to surrounding land"? (See 82-11-111(2)(a) MCA.) If so, this is an excessively expansive interpretation of that authority.

Even if in this instance the authors are not relying on an interpretation of Board authority to clearly extend to access roads, their further suggestions would create a de facto authority.

It is stated that

the judicious siting of new access roads is likely, in most instances, to be a major factor influencing the Board's determination of whether an individual drilling proposal would be likely to have a significant impact on the quality of the human environment.

(DEIS at 181, emphasis added.)

The underlying proposition of the above-quoted statement is that even though the Board may not have authority over access road siting, if the operator does not choose to follow the "guidelines" of the Board, the authors of the DEIS are implying that in most instances the Board may require the preparation of an environmental impact statement. This creates de facto authority in the Board because the operator will follow the Board's "guidelines" in order to avoid the excessive delays associated with the preparation of an environmental impact statement. This is a totally inappropriate use of MEPA and has no place in the Programmatic EIS.

A) In the discussion referenced, the term "required" only refers to construction methods and techniques that may be used when constructing low impact access roads, particularly in sensitive settings such as Class 1 streams or in terrain where major cut and fill is necessary. However, use of the word "required" leads to interpretation beyond the intent of the paragraph. The sentence should be modified by removing the words "be required to" from the 6th line, last paragraph, right column of page 180.

The phrase "different perspective on private lands" refers to the difference between uses of public land and private. To clarify the intent here, the paragraph should be modified by the addition of the following language after correction of the spelling of the word "perspective" on line 3, paragraph 1, left column, page 181. "Access roads across private lands may be constructed to less stringent standards than those on public lands, but the construction methods and techniques used to minimize impacts may be similar."

The summary of access road impacts found in the second paragraph of the left column on page 181 also contributes to the continued confusion over the purpose of this PEIS and the intent of the discussion under access road siting and construction. The portion of the paragraph following the sixth line should be deleted.

B) Cenex misquotes the statement made on lines 1 and 2 of the 3rd paragraph, left column of page 181 by substituting "in most instances" for the wording "in many instances" as found in the draft PEIS. This change alters the apparent meaning of this paragraph. The Board has made certain changes in this section to reflect its beliefs about the analysis of impacts from roads under MEPA.

The discussion in the PEIS of access road siting and construction was intended to point out options for reducing the time needed to evaluate access road impacts, particularly for sensitive areas.

An underlying issue raised by the Cenex comment relates to tradeoffs the Board must consider when trying to meet its obligation and responsibility to determine impacts of individual drilling projects and to identify alternatives if adverse impacts are identified. How can the Board streamline the review process for wells where impacts from access roads could be easily addressed through alternative design or construction methods and techniques? The guidelines in the draft PEIS are intended to establish cooperation with industry and landowners for addressing road-related impacts at the project planning stage.

Cenex objects to the use of this approach as a means to reduce environmental review requirements. However, model rules implementing MEPA provide agencies an alternative to preparing an EIS. This option is called the mitigated EA and is used when "an action is one that might normally require an EIS, but effects that otherwise might be deemed significant are mitigated in project design or controls imposed by an agency." If implemented, Cenex's suggestion would limit the option to conduct a level II analysis as discussed on page 203 of the draft PEIS. The following statement from line 20, third paragraph, left column page 180 summarizes the assumptions used to develop options presented in Chapter Five.

"Regardless of how or whether legal ambiguities are eventually clarified, the key element to successfully incorporating environmental review into the Board's permitting process is to devise reasonable solutions to site-specific problems on the basis of cooperation, timely sharing of information, and, where necessary, detailed interaction and discussion among the Board, oil and gas operators, landowners and other affected parties."

The discussion under options available to the Board for access road reclamation again implies Board authority over access roads. (DEIS at 193.) Again, without a clear statement as to what the authors' assumptions are relative to Board authority, the discussions in Chapter 5 relative to access roads are ambiguous and misleading.

IV. The DEIS fails to clarify the authority and role of the Board in implementing the mitigation measures described in Chapter 4.

Chapter 4 of the DEIS describes a multitude of potential impacts, however remote, associated with oil and gas activities. Also included is a laundry-list of possible measures to mitigate those impacts.

Chapter 4 is intended to fulfill the mandate of SB 184 to provide a record of information and analysis for the Board to rely upon in responding to public and private concerns about drilling and production. (DEIS at 63.) But this record of information and analysis as presented in the DEIS is lacking in any discussion of where the authority resides to require the listed mitigation measures. Consequently, the record of information is misleading to the reading public and is basically useless.

It is apparent that Chapter 4 is tailored after an EIS covering oil and gas activities on federal or state lands. Many of the listed mitigation measures are measures which could be required only by an agency authorized to administer public lands. By no stretch of statutory interpretation could they be required by the Board. This is particularly true, for example, in that section of Chapter 4 covering aesthetics and recreation. As discussed above, it has to be assumed that federal and state agencies responsible for administering public lands will comply with NEPA or MEPA, as the case may be, and will require the appropriate mitigation measures on the lands under their jurisdiction. Thus, the focus moves to mitigation measures on private lands.

A statement in the section on aesthetics and recreation under the discussion of "Visual Concerns for Privately Owned Land" is a telling example of the misleading information found in the DEIS. The statement is as follows:

Non-federal land is not under any visual management system, although there often is concern for scenic values. These concerns may surface when proposed developments are perceived as likely to disrupt or change the visual character of an area. Where concerns are strong, local groups may organize to voice their concerns and influence the decision on whether to approve the project, and if so, under what conditions.

(DEIS at 134, emphasis added.)

IV) Much of the objection raised by Genex involves questions of Board authority that cannot be answered in the abstract at the programmatic level. However, the Board feels that some clarification in Chapter 4 would help eliminate misperceptions about the process to be used to evaluate individual drilling permits and how the Board would use information contained in Chapter Four.

Wording has been added to Chapter Four to clarify to the extent possible that the measures discussed are technical ones and that no additional implications should be attached to them (see changes discussed in Chapter Three of this final PEIS).

Genex also comments on some individual mitigation measures found in Chapter Four. The following responses are intended to clarify the intent of the measures discussed by Genex.

A) Genex quotes a statement made in the last paragraph, right column of page 134. This statement is intended to note that there is concern for scenic or aesthetic values on private land. While the statement about how local groups may react is true, portions of the statement confuse the issue of mitigation. To clarify the intent of this statement, the last sentence in the paragraph should end after the word "concerns," and the remainder of the sentence should be deleted.

It is assumed that the "project" to be approved is the issuance of a drilling permit by the Board since the Board is the subject of SB 184 and the action taken by the Board is the issuance of a drilling permit. The above-quoted statement suggests that the Board has the power to deny the drilling permit and to deny it on the basis of the disruption of the visual character of the area. This is an entirely misleading and irresponsible statement. Besides the fact that the Board has no such statutory authority, the denial of a permit on this basis for drilling on private property would clearly be an unconstitutional taking.

This misrepresentation as to the authority of the Board is furthered in the discussion regarding the selection of mitigation measures relative to recreation and aesthetics as evidenced by the following statement:

Measures for reducing or avoiding impacts to recreation and aesthetics should be selected and implemented following consultation among oil and gas operators, recreation managers, surface owners, and other affected parties.

(DEIS at 137.)

Again, since the Board is the subject of the DEIS, it is assumed that it is the intent of the above-quoted statement that the Board is the entity which shall select and implement the mitigation measures. This implies that the implementation of such measures is within the authority of the Board. The DEIS then includes a long list of mitigation measures most of which are "suitable for both public and private lands." (DEIS at 137, emphasis added.)

The first mitigation measure suggested is "to avoid location of oil and gas facilities on recreation sites or areas, leased sites, or undeveloped sites having concentrated use; ..." (DEIS at 137-38.) The location of drillsites on such lands is purely an issue between the oil and gas lessee and the owner of the particular lands. If the owner of a private recreational site wishes to lease the land for oil and gas development, the location of the oil and gas facilities is purely a matter between the lessee and the landowner. Neither the Board nor the public is authorized to have a say in what are purely private contractual matters.

It is further suggested in the DEIS that a buffer zone be established between drilling activities and sensitive recreational sites considering recreation uses; project visibility, and use levels. (Id.) Since it is stated that such measures apply to private lands, the authors of the DEIS are suggesting that an oil and gas operator on private lands should be required to drill in an area out of sight of the adjacent recreational site.

B) The comment misrepresents the intent of measures on lines 14-18 in the 3rd paragraph, right column on page 137, and of the measures quoted on page 138. These measures have been demonstrated to be effective in resolving recreation and aesthetic conflicts. Cenex incorrectly assumes that the measures were identified solely for use by the Board. These measures could be used by other state agencies, federal agencies, oil and gas companies, and land and mineral owners. Cenex suggests that private land or mineral owners do not have an interest in seeing oil and gas development occur in an environmentally sound manner. This belief is itself misleading and a misrepresentation of the values held by many owners of land and minerals in Montana.

The owner of the recreational site has no greater rights than the owner or lessee of any adjoining private property. If the recreational site owner, be it public or private, wishes to limit development on adjoining private property, the owner has the option of purchasing an appropriate type of easement from the adjacent property owner. Again, this is a matter of private contractual rights in which neither the Board nor the public has a role.

The DEIS also suggests mitigation measures to "reduce conflicts" between recreation activities and oil and gas activities. This language is obviously borrowed from federal environmental statements as the BLM and Forest Service are charged with balancing the uses of federal lands under the multiple-use concept. The Board is a permitting agency and has no authority to implement measures designed to balance the various possible uses of land.

The same objections apply to every other mitigation measure listed on page 138 of the DEIS. None of these measures comes within the authority of the Board and the Board should have no role in matters which involve purely private contractual rights. To suggest otherwise misleads the public.

There are numerous other examples of mitigation measures where the DEIS far exceeds the bounds of Board authority. The entire chapter must be rewritten to clarify the authority for requiring suggested mitigation measures. If the authors feel it is necessary to list all the various mitigation measures which are available to federal and state agencies administering public lands, then it should be made clear that the Board has no role in the implementation of such measures.

For the above-stated reasons, it is our firm belief that the DEIS is seriously flawed and should not be adopted by the Board. For the Programmatic EIS to be meaningful and useful, the redraft should be limited as follows:

1. The "project" covered by the Programmatic EIS is the issuance of individual drilling permits.
2. The list of the impacts discussed must be supported by factual findings that oil and gas drilling and production actually cause such environmental impacts; impacts should not be included which are merely speculative.
3. The list of mitigation measures should be limited to those which are within the Board's authority to implement and, within the language of SB 184, are "necessary to avoid permanent impairment of the environment or to mitigate long-term impacts...."

4. The recommended options available to the Board must include only options necessary to correct problems which actually exist, options which are not within the jurisdiction of other agencies, and options which are within the authority of the Board to implement.

Respectfully submitted,

By: Corinne Courtney
Corinne Courtney
Regulatory Compliance Attorney

CC:VW



Chevron U.S.A. Inc.

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Lisa Flesche Mercier

Staff Analyst
Legislative and Regulatory Affairs

May 15, 1989

RECEIVED

MAY 24 1989

MONTANA DEPT OF NATURAL
Oil and Gas Drilling & Production

Mr. Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Ave.
Helena, MT 59620-2301

Dear Mr. Hart:

Chevron U.S.A. Inc. has several serious concerns about your draft EIS (DEIS) for oil and gas operations in Montana.

ILLEGAL INFRINGEMENT ON PRIVATE PROPERTY RIGHTS

We believe the scope of the DEIS exceeds the Board of Oil and Gas Conservation's authority, because your proposal states that you would be applying this environmental review process to private lands. We agree it is the Board's function, for the purpose of protecting the public's health, safety and welfare, to consider the impacts of a well related to such traditional areas such as air, waste disposal, and construction of the well pad. However, for the Board to take into account issues such as impacts on wildlife, recreation, aesthetics, cultural resources, land use, socioeconomic considerations, and access routes for wells on private lands is clearly beyond the Board's statutory authority, and would result in a tremendous infringement on the property rights of private landowners.

In addition, under the discussion of "Visual Concerns For Privately Owned Lands" (DEIS, page 134), it is stated:

Where concerns for scenic values are strong, local groups may organize to voice their concerns and influence the decision on whether to approve the project....

Not only are you proposing that the Board should be able to dictate to a private landowner how to manage his property to consider the aforementioned environmental values, but you are also giving that landowner's neighbors the right to participate in determining how that landowner may conduct his private affairs. Not only is this not fair, it is of questionable legality.

We propose that you recognize you cannot expand the Board's permitting authority into these new environmental areas for wells on private lands, and that for private lands you keep the scope of permitting issues limited to those you have traditionally examined. Otherwise we believe the Board will be subjected to serious legal challenges by private landowners.

Chevron objects to the application of MEPA to certain lands under the authority of the Board because of questions about the Board's authority to impose mitigation, and issues of infringement. Many of the Chevron issues are similar to those raised by Genex, particularly those regarding authority to impose mitigation (see Genex response I). This response is limited to new issues raised by Chevron.

1) It is unwise for the Board to fail to reasonably assess the impacts to which Chevron objects on private land. If the Board does not assess such impacts, the permit decisions are subject to challenge for failure to consider impacts under MEPA. A separate issue is whether authority exists under 82-11-111(2)(a), MCA to require mitigating measures, and whether imposition of those measures results in infringement or taking of private property rights. These issues of authority and infringement cannot be objectively addressed in the abstract.

Chevron mistakenly interprets the statement made on page 134 of the draft PEIS, but this sentence has been clarified as noted in Genex comment number IV.

May 15, 1989

NEEDLESS DUPLICATION OF EXISTING FEDERAL PROCESS

We propose that well permits on federal lands be exempted from MEPA, since the existing federal NEPA statute and federal agencies do such a thorough and adequate job of analyzing environmental impacts. If the state's permitting process is expanded to include the very same type of analysis that is already occurring, this would result in a waste of the Board's time and funding, as well as the taxpayer's money. We propose you exempt federal wells from any additional environmental analysis because the existing federal process ensures that such environmental concerns are being addressed. However, the Board should reserve the right to intercede in the future if the NEPA statute is ever amended so that the federal agencies are not mandated to consider the environmental impacts of wells on federal lands (which is hard to imagine).

INFRINGEMENT ON AUTHORITY OF OTHER STATE AGENCIES

We realize that Senate Bill 184 requires the DEIS to discuss methods for making environmental review a part of the Board's permitting process. However, we question if this approach is the most logical, simply because the Department of State Lands (DSL) and the Department of Fish, Wildlife and Parks (DFWP) retain control of all activities on the public lands under their jurisdiction. These two state agencies must comply with MEPA with regard to oil and gas activities on state lands, and they also issue the oil and gas leases and approve drilling and surface operations. We believe it would unnecessarily complicate the permitting process if the Board is brought into the environmental review process, since these other two agencies already will be responsible for ensuring MEPA compliance. We urge the Board to recommend that this environmental review process be kept within the duties of the DSL and DFWP, and not be made a part of the Board's responsibilities.

CONCERN ABOUT TIMELINESS OF PERMITTING PROCESS

We are concerned that your proposal supports the adoption of a time-consuming and unnecessary extension of the current well permitting process. Your document states that if an EA or EIS is necessary, the permit approval process could take six months to one year (DEIS, page 197). Further, it states that if interagency consultation is necessary, the success and timeliness of such depends on whether the Board and other agencies can agree on various issues (DEIS, page 203). We know from past experience that oftentimes agencies do not agree on approaches. Consequently, the most comprehensive and time-consuming approach is most likely the one that is adopted. We have serious concerns that your proposal will needlessly encumber the current permitting process, and be a deterrent to oil industry operations in Montana.

CONCLUSION

In summary, we offer these comments with the hope that we can provide constructive feedback in order to help you create the most efficient, logical, and legally-defensible method of incorporating the requirements of MEPA into the existing regulatory system. Since in just one recent year, 1987, Montana received \$8.4 million in state royalties and other leasing costs, and since less than 3% of the state has been evaluated for oil and gas, we are sure you share our concern that any incorporation of MEPA into the existing process not needlessly encumber and discourage oil and gas activity in the state.

2) The Board agrees that a mechanism is needed to eliminate duplication and streamline the state environmental review and permit process for federal wells. See response to Cenex Response Number II.

3) The Board disagrees that it can abdicate its responsibilities for either drill permits or MEPA requirements to DSL or DFWP for wells on state lands. However, overlap and duplication of environmental review must be eliminated. See Cenex Response Number II.

4) The Board is committed to the development of a process that is efficient, workable, and does not present unreasonable impediments to oil and gas development. Not all wells have the same potential for impact. Thus, the process that is developed should be flexible to provide quick environmental review where conditions allow, while promoting environmentally sound development.

Mr. Kevin Hart

-3-

May 15, 1989

Therefore, we have proposed the following:

- For state lands, the DSL and DFWP should be charged with ensuring compliance with MEPA.
- For private lands, the Board should continue to include the traditional issues in the permit review process (such as air, water, waste disposal, and wellpad construction), but to incorporate other "environmental issues" discussed above would be an infringement upon private property rights, and could result in an unconstitutional taking.
- For federal lands, the state should defer to the existing NEPA compliance process, since to do otherwise would be duplicative and wasteful.
- Finally, whatever you ultimately propose, we request you ensure it will keep the process efficient and workable, so that it does not create an unreasonable impediment to oil and gas activities in Montana.

Thank you for your consideration of our comments.

Sincerely,



L. F. Mercier

LFM:js

EXXON COMPANY, U.S.A.

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PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

REGULATORY AFFAIRS

RICHARD J. GUDDARD
SUPERVISOR

RECEIVED

MAR 31 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

March 30, 1989

Exxon Comments on Montana Oil and Gas
Drilling and Production
Draft Environmental Impact Statement

Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East 6th Avenue
Helena, MT 59620-2301

Dear Mr. Hart:

The Southwestern Production Division of Exxon Company, U.S.A., a Division of Exxon Corporation, appreciates the opportunity to submit the following comments on the State of Montana's Programmatic Environmental Impact Statement (EIS) on Oil and Gas Drilling and Production. Exxon is the second largest producer of crude oil in the state of Montana. We are concerned that the permit process for oil and gas drilling should continue to allow reasonable access to mineral resources. Our comments are intended to ensure that the final EIS is an accurate evaluation of potential impacts of routine oil and gas well drilling and production and that the document fulfills the requirements of the Montana Environmental Policy Act and Senate Bill 184.

Attachment I contains detailed comments which are specific to referenced pages of the EIS. Those detailed comments identify areas in the document where we have specific concerns and develop the background for Exxon's four major concerns about this EIS. The four concerns are as follows:

- The EIS addresses drilling and production impacts on Federal and non-Federal lands without regard to the extensive nature of federally required mitigation measures.
- The EIS over-emphasizes potential impacts of oil and gas drilling and production, without recognizing that the most severe impacts will rarely occur.
- The EIS does not give sufficient credit to mitigation measures which are commonly used to prevent potential adverse impacts.
- The EIS does not clearly establish a future drilling permit process.

Additional information on the concerns identified above is provided in the following paragraphs:

Process Applied to Federal Lands

The Federal government owns about a quarter of Montana, and in the western half of the state Federal ownership is more than 50 percent. Adding new

The Board is committed to developing an efficient, workable environmental review process that promotes reasoned, environmentally sound oil and gas development. Some clarification is needed to eliminate Exxon's misperceptions about the draft PEIS.

Please refer to response to similar issue raised by Genex and Chevron.

permit requirements to the extensive federal permitting system would be an unwarranted expansion of the permitting process. Furthermore, such an expansion would not add to the environmental protection that already exists. The Federal government has a demonstrated history of providing good protection for sensitive environmental resource values. Therefore, the Department of Natural Resources and Conservation should retain existing permit processes for all wells drilled on federal lands and implement new procedures only where justified by impacts for wells on non-federal lands.

Overemphasis on Negative Impacts

The entire chapter which discusses potential impacts of oil and gas drilling and production consistently uses a sentence structure which implies a high probability of occurrence of the impacts. Specifically, most of the impact sections have a discussion which begins "oil and gas drilling can" when in fact the impacts are very unlikely. Exxon also has specific concerns about references to a draft elk monitoring study in the Riley Ridge Area in light of additional analyses to be jointly presented by the Wyoming Game and Fish Department and Hayden-Wing Associates at the 1989 Joint Meeting of Western Associations of Fish and Wildlife Agencies. Those concerns will be discussed in Attachment I.

Inadequate Credit is Given for Mitigation Measures

The actual potential for impacts of most drilling is very concisely stated on page 175 of the EIS: "In most cases, the drilling of an individual oil or gas well will not result in major adverse impacts on the environment if proper care is taken in the siting and construction of the drilling location and access road, if drilling muds and fluids and any other wastes are disposed of in an appropriate manner, if safe drilling practices are observed, and if the site and road are properly reclaimed". This conclusion should be emphasized much earlier in the document. Furthermore, the impact discussion should state that mitigation measures are sufficient to avoid almost all potential adverse impacts from oil and gas operations. Therefore, the impact section of the EIS should be reformulated to contain probability estimates for each impact occurrence and statements of the applicability of standard mitigation measures.

Future Process Not Clearly Identified

Although samples of possible forms for Application for Permit to Drill are contained in the EIS, the document does not clearly identify deadlines, processing time, or information requirements for future applications. The EIS also lacks clear recommendations for a program that the Board of Oil and Gas Conservation should adopt to ensure compliance with the Montana Environmental Policy Act. The EIS concludes that the majority of wells do not cause adverse impacts. Therefore, we recommend that any additional permit requirements should be clearly limited to isolated cases.

If you have any questions or would like additional detail on these comments, please call me at (915)688-7544 or Linda Chenoweth of my staff at (915)688-7543.

Sincerely,

Charlotte Sharper 3/30/89
for Richard D. Goddard

RDG:ckr
Attachments
c: Janelle Fallon, Montana Petroleum Association

Exxon believes that the draft PEIS overemphasizes negative consequences and fails to give adequate credit for mitigation measures.

To a certain extent, the negative tone perceived in Chapter Four may be inherent in the EIS process since the triggering mechanism for detailed environmental review is based on the probable significance of adverse effects. Chapter Four was intended to assist with making future determinations in the permit granting process about impacts based on the presence or absence of sensitive features. Thus Chapter Four attempts to define circumstances most likely to result in adverse impacts. Still, Exxon's point is well taken that this analysis should not discount the effectiveness of mitigation, nor should it imply that adverse impacts are certain. The final PEIS will contain changes that the Board believes will address this concern.

Exxon misses or ignores a major finding of the draft PEIS: that it is not possible to predetermine adverse impacts from any given project, and therefore the need for or effectiveness of mitigation cannot be known in advance. This point is evident in the statement on page 175 of the draft PEIS which Exxon quotes out of context. A reading of the complete paragraph clarifies that in addition to certain considerations that apply to all drilling locations as cited by Exxon, the potential for impact from oil or gas wells depends on site-specific conditions and whether mitigating measures are used or are effective. It is not the purpose of the Programmatic EIS to make these case-by-case judgments. Also, Exxon raises several good technical points on the draft EIS which are responded to individually as follows.

ATTACHMENT I
EXXON CORPORATION COMMENTS
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON OIL AND GAS DRILLING
AND PRODUCTION IN MONTANA

Page 15, Left, Paragraph 3, Line 1

The statement which reads "Figure 11 shows the general sequence of operations associated with phases of oil and gas activity" should be changed to read: "Figure 11 shows the general sequence of operations that may be associated with phases of oil and gas activity. Actual operations for each well will vary on a case by case basis because of changes in surface and reservoir constraints."

Page 19, Figure 11

The density of the development illustrated in this panel is unrealistic. The reader who is not familiar with oil and gas operations will form the impression that in a fully developed field the amount of surface disturbance approaches that of a residential development. If possible, this illustration should be changed to a more realistic depiction of visual impacts from field development. If the illustration can't be changed, perhaps a footnote could be added which could state that actual visual impacts would not be as intense as shown.

Page 21, Figure 12

This figure should be labelled "Example Location Layout For A Well up to 3500 feet Deep". The layout shown in this figure is one of many possible options. The EIS should not imply that all well locations will look like this example. Otherwise, future legal challenges could be filed on the basis that a proposed project was not exactly like the EIS example. The qualifier should help avoid such legal problems. The same addition should be made on the following two pages for Figures 13 and 14. Please also note that the Bureau of Land Management (BLM) standard for separation of flare discharge from the wellhead is 100 feet, rather than 250 feet as shown in these figures. The shorter distance has been demonstrated as safe and appropriate.

Page 30, Figure 18

This illustration of a blow-out preventer should be clearly labelled as a sample for the same reasons noted on the proceeding comment.

Page 36, Right, Paragraph 3, Line 2

The sentence which reads "Electric motors are the first choice, due to reduced maintenance and operating costs." should be deleted. This is a questionable conclusion, since it does not consider the economics to the operator of variable fuel prices or the cost to transport fuel to the field if it doesn't produce gas. The comment should not be included in the EIS.

Page 37, Figure 22

This cut-away view of a heater-treater should be labelled "typical" or "example".

Page 41, Left, Paragraph 3, Line 1

The sentence which currently reads "Wells that are completed as dryholes are generally plugged..." should be changed to read "Wells which are

Item 1: We agree. Line 1, paragraph 3, left column on page 15 is hereby amended.

Item 2, 3, 4: We agree. Note changes made to figures reprinted in Chapter Three of this final PEIS.

Item 5: We disagree in part. When read in context, the sentence is not inappropriate. However, the following wording would clarify the intent of the statement. On line 3, paragraph 3, right column of page 36, remove the words "are the first choice, due to" and insert "offer."

Item 6: We agree. (See Chapter Three of this final PEIS.)

Item 7: Comment noted. While general oilfield usage may restrict "completed" to refer to producing wells, Board rules define this word to include dryholes that are to be plugged and abandoned.

dryholes are generally plugged...". General oilfield usage restricts "completed" to a well which is capable of production; not a well which will be abandoned.

Page 45, Section titled LEASING

This entire section and the following section titled SEISMIC OPERATIONS should be deleted. Page 2 of the EIS states that "Leasing and seismic exploration are not treated in detail here because they are outside the scope of Senate Bill 184. Leasing is not addressed... because it is clearly not within the scope of the Board's regulatory authority... The counties rather than the board are responsible for issuing seismic permits." Therefore, these sections are an unnecessary complication of the EIS.

Page 54, Right, Paragraph 1

Please add Onshore Order No. 2 Drilling Operations, Onshore Order No. 3 Site Security, Onshore Order No. 4 Measurement of Oil, and Onshore Order No. 5 Measurement of Gas to this discussion of applicable BLM regulations.

Page 58, Left, Paragraph 1

This discussion of the federal constraints on drilling activity is incomplete without a discussion of lease stipulations. Land Management plans of the BLM and Forest Service contain recommendations for lease stipulations. These recommendations are based on an evaluation of sensitive surface resources and potential impacts of oil and gas operations. Therefore, when a lease is issued with a special stipulation, operation on that lease must be in accord with the lease stipulation. The federal Authorized Officer can waive the stipulation if it is not necessary to protect the environmental resource value the stipulation references. Therefore, considerable protection of environmental values is provided on Federal lands.

Page 58, Right, Paragraph 2

Please change this discussion of the Forest Service authority for lease and APD issuance and approval to reflect the changes made in the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

Page 77, Left, Paragraph 3, Line 1

Please change the phrase which currently reads: "Slopes greater than 15% are limiting to access roads and sites because..." to read "Slopes greater than 15% will require careful design and construction techniques for access roads and sites because...". This revision more accurately reflects that special care is required for steeper slopes. With appropriate precautions, such construction can be done without adverse environmental impacts.

Page 77, Right, Paragraph 5, Line 1

Please delete "Actions taken without knowledge of the limiting constraints posed by the physical environment can result in impacts to the environment. For example..." A company drilling a location will evaluate the physical constraints prior to initiating surface action. Failure to do so could be costly in time and money. Therefore, this phrase implies a carelessness which does not typify the industry. This paragraph is a good example of the sentence structure which implies a high degree of probability of environmental impact. The sentence in the EIS continues: "surface disturbance can trigger slope failures which can

Item 8: Comment not accepted. The attention to be given to these sections in the EIS is sufficiently documented. Also, these sections do provide a context for later discussions.

Item 9: Comment noted. Onshore Order 1 is the controlling federal regulation related to the issuance of permits to drill. BLM has published additional orders that establish standards for various aspects of drilling and production operations. The orders cited by Exxon contain the specific standards adopted by BLM. The addition of these orders is not necessary for the purposes of the programmatic EIS.

Item 10: Comment noted. The discussion of federal lease stipulations found on page 46 of the draft PEIS is sufficient to capture the intent behind this comment.

Item 11: The necessary changes have been made. See discussion in Chapter Three of the final PEIS.

Item 12: We agree in part. The intent of this comment is well taken although the wording should be modified as follows: Lines 1 and 2, paragraph 3, left column page 77 should read "Special design and construction techniques may be necessary on slopes greater than 15% because:"

Item 13: We agree. Paragraph 5, right column on page 77 is deleted.

degrade water quality and have long term consequences for aquatic species including fish." In fact, the probability of these occurring when appropriate mitigation is used is very minimal. This low probability should be clearly identified.

Page 94, Left, Paragraph 2

This paragraph references 32 complaints about water quality during a 5 year time period. Those complaints refer to both drilling and production operations. During that same 5 year period, 2,727 wells (Figure 5 in the EIS) had been drilled. Furthermore, there are currently over 6800 wells (page 5 in the EIS) producing in Montana. Therefore, these complaints represent only about one percent of the wells drilled during that time period and less than one-half percent of the wells currently producing. Clearly, these potential impacts occur very rarely. The EIS discussion should clearly state that such problems are uncommon.

Page 104, Table 19, Summary of Well Complaints in Montana by County

The discussion of this table needs to place the 26 complaints about air quality related impacts of oil and gas in the context of total development in the state. Since there are currently over 6800 producing wells in the state of Montana, less than one-half percent of the wells are likely to be a problem. The rarity of such potential impacts should be clearly identified in the discussion.

Page 112, Right, Paragraph 2, Last Line

Please delete the sentence which reads: "Development of the gas field caused a precipitous decline in elk populations and abandonment of winter range (Harju 1985; Johnson 1985)." This statement was in a preliminary draft report on potential impacts. Further study has been conducted on the elk monitoring data available from the Riley Ridge development. Exxon understands that the Wyoming Game and Fish Department will be issuing a final report on this issue in the near future and that the final report does not support the preliminary draft conclusion which is quoted. The EIS should not include a statement from a draft study if a final study is available.

Page 114, Right, Partial Paragraph, Line 2

Please change the sentence to read as follows: "The large Riley Ridge Gas Project which was planned in Wyoming proposed approximately 207 wells spread over approximately 180 square miles, and would have required 76 miles of new road and 135 miles of road upgrading". The referenced magnitude of development is from a draft EIS. The actual construction scale for the Labarge project was an order of magnitude less than that evaluated. The contingent nature of these estimates needs to be clearly identified in this EIS.

Page 115, Right, Paragraph 6

Please delete this paragraph which references the elk study on the Riley Ridge Project. As previously mentioned, we understand that additional analysis does not support these conclusions. We urge the Montana Department of Natural Resource and Conservation to use the final study when it becomes available.

Page 120, Right, Paragraph 5

Please rework this section to make it clear that the impacts identified in the Riley Ridge EIS were estimated impacts evaluated prior to any construction. Detailed surface fisheries and water quality monitoring

Items 14 and 15: Comments noted. The draft PEIS is clear in describing the context and intent of data presented on page 94 and on page 104. In both cases, data is only used to help illustrate circumstances surrounding identified problems. The suggested additions would not alter the analysis nor change the conclusions of the draft PEIS as noted in the air quality and water quality impact summary sections on pages 176, 177, and 178 of the draft PEIS.

Item 16: We disagree in part. Exxon suggests that the sentence regarding impacts to elk reported by Harja (1985) and Johnson (1985) be deleted because it is not correct. However, Exxon's comments do not reflect the fact that monitoring data on wildlife impacts associated with the Riley Ridge development is subject to interpretation. The draft PEIS correctly reported available data. Additional monitoring studies suggest that data regarding impacts to elk should be reviewed in consideration of possible impacts that may differ during drilling and production phases.

Harja (1985) and Johnson (1985) reported observations made of elk behavior during drilling in the Riley Ridge field. In response to these observations, additional monitoring was funded and conducted in this field. According to the Wyoming Game and Fish Department, the Riley Ridge monitoring study is not available for review. In addition, the presentation of the study results scheduled for the 1989 Joint Meeting of Western Associations of Fish and Wildlife agencies will not be made (Johnson 1989).

Although the results of the Riley Ridge monitoring study are not available, Johnson (1989) reported that the monitoring data definitely show that elk displacement from winter range was coincident with oil and gas activity. The distance elk were displaced and the location to where elk moved has not, however, been established. Subsequent to the drilling activities, elk have returned to the Riley Ridge winter range, but not at the same levels as occurred prior to drilling (Johnson 1989).

According to Hayden-Wing (1989), a participating researcher on the Riley Ridge elk monitoring study, statistically valid conclusions regarding the effects of oil and gas activities on elk displacement are not justified by the existing database. Natural variations in elk numbers and winter distribution are too great to allow statistical demonstration of a correlation between oil and gas activity and elk behavior and movement patterns on the Riley Ridge winter range. Inferences regarding elk displacement by oil and gas activity at Riley Ridge may be inconclusive due to data insufficiencies and data collection biases (Hayden-Wing 1989).

Item 17: Comment accepted. The reference to the proposed Riley Ridge project was included to provide an example of how many miles of road would be required for approximately 207 wells. However, the level of development addressed in the Riley Ridge EIS was higher than what actually occurred. With fewer wells, fewer miles of new road would be required. The following sentence should replace the last sentence, top paragraph, on the right column of page 114 of the draft EIS: "The large Riley Ridge Gas Project which was planned in Wyoming proposed 207 wells spread over 180 square miles, and would have required 76 miles of new road and 135 miles of road upgrading (U.S. Bureau of Land Management and U.S. Forest Service 1983)."

Item 18: Comment rejected. Please refer to response to item 16.

Item 19: Comment accepted. See Chapter Three of this final PEIS regarding additions to page 121 of the draft PEIS.

which was conducted during construction and facility operation verified that no identifiable statistically significant negative impacts occurred. This lack of significant impacts demonstrates the effectiveness of the surface disturbance mitigation measures used on the project.

Page 175, Right, Paragraph 3, Last Line

The phrase which reads: "but the impacts are inherently more serious than during drilling due to the long-term nature of production activities" should be modified to read "but for the rare cases where the impacts may be serious the long-term nature of production activities should be evaluated".

Page 177, Left, Paragraph 1, Last Sentence

Please delete the reference to worker exposure to noise levels in excess of 90 dBA. OSHA standards do not allow such exposure.

Page 179, Section titled ENVIRONMENTAL REVIEW ALTERNATIVES

This entire section is very difficult to read and evaluate because the document does not recommend a specific course of action for the Board. Furthermore, a narrative discussion of alternatives which are not clearly linked with effects, does not allow the reviewer to determine a preferred alternative. To comply with the requirements of Senate Bill 184 the final EIS must contain specific recommendations for Board actions. Furthermore, the final EIS must identify deadlines which must be complied with in permit processing.

Page 195, Right, Paragraph 1, Line 1

The option of prohibiting any flaring at wells containing any hydrogen sulfide is unrealistic. Some flaring occurs as a result of emergency or upset conditions and regulations which do not recognize this fact will cause unnecessary production shut-in.

Page 198, Right, Paragraph 2, Line 9

The proposal for the board to define minimum acceptable practices and attach general condition on drilling permits is a good idea. This proposal would allow the oil and gas industry the necessary flexibility to conduct operations and develop oil and gas reserves while at the same time ensuring protection of environmental resources.

Page 207

If the Board chooses to adopt an environmental checklist similar to this sample, Exxon strongly recommends that the rating for each potential resource area impact should consider appropriate mitigation measures. Evaluating impacts without any mitigation measures would result in significant over-estimation of potential impacts. Such over-estimation would increase the number of unnecessary site specific EIS's.

Page 211, Right, Paragraph 3

Exxon recommends that the board develop a Memorandum of Understanding (MOU) with the BLM and the Forest Service to defer to the federal agencies in adopting environmental documents. The federal agencies have considerable expertise at evaluating potential impacts of oil and gas drilling and production activities. Furthermore, they also have the staff to conduct this activity. The promulgation of such MOU's would have significant benefits by eliminating an overlapping permit process.

Item 20: We agree in part. The proposed wording would alter the meaning of the sentence beyond its original content. However, to correct a perceived negative tone, the wording should be modified as follows: the phrase "but the impacts are inherently more serious than during drilling due to the long-term nature of production activities" should be replaced with "and any effects should be evaluated in consideration of the long-term nature of production activities."

Item 21: The last statement in the first paragraph, left column on page 177 is a summary statement of information contained in Chapter 4 and is subject to misinterpretation. The sentence should be deleted.

Item 22: Comment noted. See Chapter Six of final PEIS.

Item 23: We agree in part. The intent of the discussion in this paragraph on page 195 was to limit routine flaring until analysis could determine the measures necessary to provide production of sour wells in compliance with air quality requirements.

Item 24: Thanks for the comment.

Item 25: The checklist assumes that mitigation would be considered when evaluating impact. This is also discussed in the second paragraph, right column, page 211.

Item 26: Please refer to Cenex response II.



Amoco Production Company

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303-630-4040

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New, W. A. M.
Bureau of Land Management
Subsistence Management

March 27, 1989

MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Mr. Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

File: NWA-368-031

Programmatic Environmental Impact Statement/Oil and Gas
Drilling and Production in Montana

Amoco Production Company, a wholly owned subsidiary of Amoco Corporation, is incorporated for the purpose of exploring for and producing oil and gas. We have both operations and leasehold within the State of Montana and, as a result, are very much interested in the draft programmatic EIS.

As a general comment, the document has presented a thorough explanation in Chapter III as to how oil and gas resources are discovered and produced. However, there are a number of concerns associated with Chapter IV and Chapter V which require us to submit comments. To better outline these concerns, we will present our comments by section.

Chapter IV, Surface and Groundwater

The mitigation portion of this section contains possible considerations for groundwater. One proposal involved maintaining a 50' vertical separation between groundwater and reserve pits or evaporation ponds (page 95, column 1, paragraph 1). If 50' separation was not possible, then consideration of soil permeability would be the basis for a liner. It should be pointed out, however, that soil permeability testing can be a very expensive and time consuming proposition.

Instead, we concur with the recommendation found on page 95, column 1, paragraph 3 to pursue a program allowing the operator to demonstrate that groundwater contamination will not occur from their activities. It is our inclination to give the operator the initiative in providing necessary proof that

Amoco's comments contain certain judgments about impacts that demonstrate an incomplete understanding of the MEPA process. In particular, Amoco expresses opinions about interpretation of impacts and state agency policy that are not supported by the analysis contained in the draft PEIS. Despite reaching conclusions similar to those in the draft PEIS, Amoco criticizes the analysis as being general but subsequently attempts to make its own generalizations that cannot be supported in the abstract. The draft PEIS concludes, and Amoco states, that individual circumstances, site features, operating procedures, and mitigating measures should be the basis of any conclusions about impacts. The purpose of the draft EIS is to help the Board develop a process that allows such determinations to be made on a case-by-case basis.

Amoco raises several specific points that will be addressed individually below.

Item 1: The mitigation measures referenced on page 95 of the draft PEIS are technical measures known to reduce potential for groundwater contamination. Possible options for rule making by the Board to protect groundwater are discussed in Chapter Five of the draft PEIS on pages 181 and 194. Any rule-making process conducted by the Board as a result of the PEIS would include discussion and comment by industry to ensure that measures adopted are practical, economical, and provide the desired level of environmental protection.

activities are conducted in a manner that would protect groundwater. Automatically requiring a 50' vertical separation or soil permeability tests should be required only after other options are exhausted.

Chapter IV, Wildlife

Before addressing specific concerns with this portion of Chapter Four, one observation must be provided. While we acknowledge that two studies were addressed in the wildlife analysis, only one, the Riley Ridge study, appears to have been used in developing mitigation. The use of this report in this DEIS is somewhat surprising since Montana officials have historically distanced themselves from non-Montana elk studies as not being representative of conditions in Montana. If this policy is now changed, we would recommend that studies from other states that indicate oil and gas activities are more compatible with big game be included as part of the EIS. This is especially necessary considering the conclusions provided in the chapter that emphasizes negative impacts to wildlife from oil and gas activities.

An example of this philosophy exhibited in the DEIS can be found on page 113, column 2, paragraph 2 which states, "...most severe impacts from oil and gas development result from construction and use of roads in winter range." Then on page 114, column 1, paragraph 2, the statement is made that "precise correlation between roads and quality of winter range is unknown, it is certain that at some level, new roads reduce carrying capacity of winter range." The second reference suggests that the actual impacts to winter range is not really known. What should be stated in the FEIS is that individual circumstances and operating procedures should be the basis on which conclusions for impacts are made. This has been and continues to be the case in various areas of the Rocky Mountains. Emphasizing only negative impacts encourages restrictions and mitigation that may not be necessary.

Page 116, column 1, paragraph 2 states "that (the) production phase requires a higher level of development than drilling" and gives a multitude of statistics on miles of disturbance for associated facilities based on operations in Wyoming. What is not mentioned is that the power lines require very little surface disturbance and in many cases are built to accommodate raptors. Pipeline right-of-ways are immediately reclaimed and have been found to be very acceptable habitat to various species. Furthermore, production locations are typically reclaimed to a smaller size after drilling. In addition, production facilities are visited intermittently by company personnel resulting in a lower activity level with very little disturbance to wildlife.

Item 2: A thorough and objective review of literature regarding wildlife impacts from oil and gas development supports the analysis and conclusions reached in the wildlife section of the draft PEIS. The mitigation measures discussed in the draft PEIS are supported by several studies beyond those cited by Amoco, including published Management Guidelines of the Interagency Rocky Mountain Front Wildlife Monitoring Evaluation Program (1987) and the U.S. Forest Service (Bromley 1985).

As stated in the draft PEIS, the precise correlation of road density with quality of winter range is not known, although this could be determined by studies that include consideration of local physical and biological conditions. The use of roads on winter range also is known to pose a risk of impact to wintering big game, although the magnitude of the risk cannot be predicted without site-specific studies. Both MDFWP and the U.S. Forest Service (USFS) discourage or prohibit vehicular access to winter range while big game animals are restricted to this critical habitat. Measures are available to reduce adverse impacts. As noted in the draft PEIS, the need for such measures is best determined on the basis of problems raised by the individual permit.

Amoco is correct in its comment that measures can be effective in reducing some impacts. However, Amoco's comment does not recognize that various types of wildlife may react to a given stress in a range of differing responses. Also, the comment does not recognize that the production phase includes a longer operation period and a number of additional activities beyond those of drilling the individual well, and these can cause additional effects.

In order to evaluate the statistics presented in the EIS, they should be put into perspective. If the total acreage numbers were apportioned on a per well basis, you would see the following disturbance per well:

Average well site :	3.5 acres
Average road :	2.8 acres
Average power line:	.14 acres
Average pipeline :	2.3 acres
Total	8.74 acres per well

However, as stated earlier, the 2.3 acres for pipeline would be reclaimed and reseeded and the well site, if productive, would be partially reclaimed and reduced in size. Also, keep in mind that Wyoming statistics probably include Overthrust type well locations which require larger sites needed to drill deep wells. Most well sites in Montana, consequently, would probably be smaller. Assuming reclamation of the pipeline, a total of 6.44 acres would be disturbed for production activities using the data from Wyoming. Applying the figures found on page 117, column 1, paragraph 7, where 16 wells per mile is given as a worst case scenario for development, only 16% of a 640 acre area would be disturbed. It appears difficult to comprehend that production activities could be so threatening when the disturbed area is so small and is spread over time and space.

It is recommended that generalized conclusions about development activities being incompatible with wildlife be eliminated. A more equitable approach in the EIS would be to provide a discussion on utilizing site specific criteria as the basis for making impact determinations. Data on how, when, and where operations will take place are all valid and necessary components for making an accurate assessment on impacts to wildlife. In addition, conclusions about impacts to big game from oil and gas should be balanced by including references to other studies, regardless of from which state the information was obtained, as a point of reference for future use.

Page 116, column 2, paragraph 5 includes a reference under cumulative impacts, that oil and gas could lead to increased timber harvest in some areas. We question why this reference is made in the document. If a timber sale occurs, that decision is made by the agency with authority over that resource. The fact that an oil and gas activity may have provided possible access is not a concern for agencies reviewing oil and gas proposals. This reference should be deleted from the FEIS.

The land use and vegetation sections of the draft PEIS sufficiently discuss the actual acres of disturbance that can be expected from oil and gas development in various regions of Montana. Amoco's comment as it relates to impacts on wildlife misses the point and demonstrates a lack of understanding regarding the significance of impacts. Amoco incorrectly asserts that all potential impacts are somehow proportional to the amount of physical disturbance at a well site. This assumption fails to recognize the interactive nature of some activities and impacts as related to wildlife effects. Although a disturbance may be small, the area around the disturbed site also can be reduced in habitat quality due to human and mechanical activities at the site. Elk, for example, are displaced anywhere from one-half mile to 1 mile from roads and associated traffic. The pattern of disturbance relative to terrain, vegetation, and other habitat features also must be considered. Cumulative impacts of relatively small areas of disturbance distributed throughout a larger area of habitat may not be proportional to the total acreage disturbed. Actual impacts will depend on the drilling location and sensitivities of the affected wildlife species to disturbance.

The PEIS is intended to characterize the potential impacts of oil and gas activities on a statewide basis. For these reasons, some discussions may be general in nature. However, such discussions help support the conclusion that the basis for determining impacts is best done in consideration of factors to be evaluated in the context of the individual permit. The draft PEIS and Technical Appendix volume references numerous studies from states in the Rocky Mountain region and Canada in support of the analysis and conclusions.

MEPA requires agencies to consider cumulative effects from reasonably foreseeable or known activities when evaluating impacts of a drilling proposal. Failure to acknowledge and disclose such potential effects could leave the analysis subject to challenge and lead to unnecessary delays in permit approval.

Chapter IV, Noise Effects

The only comment we have on this section is with Figure 35, found on page 125. While it is true that a rig floor or certain housed components can be noisy depending on what is occurring, the general public is not exposed to these levels of sound. Instead, the emphasis should be placed on evaluating noise impacts to nearby sensitive receptors. It is our recommendation this diagram be deleted from the FEIS.

Chapter V, General Comments

Chapter Five contains a number of possible program alternatives which are apparently designed to address the environmental consequences outlined in Chapter Four. While we recognize these are alternatives for consideration, we request that careful evaluation be given to the proposals. As we outlined in comments made earlier, complications in terms of costs and delay would occur from many of the recommendations. Amoco believes strongly that the cost considerations for many of the recommendations must receive analysis before the final EIS is released. It is important that policy makers be aware of what the financial and logistical ramifications of these proposals could include. In the absence of this data, a final EIS with recommendations similar to those presented could result in adverse impacts to the industry in Montana.

Thank you for considering our comments.

Kevin Hart

DRB/ac

Item 3: When taken in context, the noise section in the draft PEIS places emphasis on off-site noise effects. Figure 35 discloses noise levels at the drill site and illustrates exposure limits that require hearing protection.

Item 4: The Board is committed to development of an efficient, expedient, and environmentally responsible review and approval process for wells. Refer to Chapters Six and Seven of this final PEIS for discussion of the process to be adopted by the Board.

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MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

 PHILLIPS PETROLEUM COMPANY

CASPER, WYOMING 82601
152 NORTH DURBIN STREET, SECOND FLOOR

March 27, 1989

Kevin Hart, Project Manager
State of Montana
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

RE: Oil and Gas Draft
Programmatic EIS

Dear Mr. Hart:

The referenced document has been reviewed by my staff and was found to be refreshingly complete and informative. The document adequately explains the complex regulatory structure currently surrounding the oil and gas industry. The document reveals options for the approval of operations while dealing with environmental and socioeconomic concerns.

Only the scope of applicability of the programmatic EIS was left to question while the agreement between the Board and the BIM was revealed there was no discussion of applicability to private lands. Is this document to be used in decision making on all non-Federal lands, all non-Federal minerals, only on State land, State minerals? It appears that the intent is all non-Federal mineral oil and gas projects would be covered by this EIS. What is the role of the private landowner if this program does indeed cover all non-Federal oil and gas projects. Where does this mesh with Montana's Surface Owner Damage and Disruption Compensation Law? What is the role of the fee mineral owner? Answers to the question of scope are needed.

We appreciate the extreme amount of work that went into this document and look forward to clarification of the scope of the EIS.

Sincerely,

PHILLIPS PETROLEUM COMPANY

A. H. Oden

S. H. Oden
District Superintendent

RCT:dnr/fb

cc: Montana Petroleum Assoc.

The draft PEIS was intended to apply to all lands where the Board has responsibility for issuing a permit to drill. But, as noted in previous responses (see Cenex response II), the practical application for the draft PEIS will be for wells drilled where private parties or the state own the land surface or mineral rights. The role and involvement of the private landowner or fee mineral owner will be clarified to the extent it can be in the process that the Board adopts (see Chapters Six and Seven of this final PEIS). As noted in Chapter Three of the draft PEIS, there may be some overlap between the Board's responsibilities under 82-11-111(2)(a), MCA and certain provisions of the Montana Surface Owner Damage and Disruption Compensation Law. It is not possible in the abstract to determine what measures the Board could require to prevent contamination or damage to surrounding land, since such decisions are best made in consideration of specific potential problems on a case-by-case basis. However, it is clear that the Board has no role in making or settling claims for payment of damages under provisions 504 through 508 of Montana's Surface Owner Damage and Disruption Compensation Act.

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1601 Lewis Avenue Building
Billings, MT 59104
(406) 250-7860

February 22, 1989

Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

Dear Mr. Hart:

RE: Programmatic Environmental Impact Statement (EIS) on
Oil and Gas Drilling and Production in Montana

When the Programmatic Environmental Impact Statement was originally proposed, the expressed intention of the document was quite specific. It was to allow the oil and gas industry to comply with MEPA so as to minimize environmental impacts without undue hindrance to already beleaguered industry. With the ever present competition for limited investment dollars, the people of Montana need to ensure that needless regulations are not enacted, driving more and more companies from the State. It is the opinion of Balcron Oil that these objectives are not served by the current draft.

The proposed procedures for obtaining permits to drill wells within the State will result in increased time and expense for both the industry and government segments. This concern is amplified when the specific permit involves a private land and mineral owner. While no one disputes the State's right to regulate development of State lands, there is serious concern about the State interfering in an agreement between private parties.

In addition, several of the concerns addressed in the EIS such as air quality, wildlife and fisheries, recreation and vegetation are areas in which the petroleum industry is a relatively minor offender. For example, the agricultural industry is a much greater threat to the above concerns, yet no call is heard for additional regulation or even study of the environmental impact of agricultural operations.

Balcron objects that the draft PEIS does not meet the objective of complying with MEPA without undue hindrance to the industry, and that certain suggestions made by industry during development of the draft permit application form are not included in the document.

The Board will address Balcron's concerns in its review and selection among options presented in the draft PEIS. Some of Balcron's concerns indicate a misunderstanding of the obligation that MEPA imposes on the Board's issue of permits to drill. This misunderstanding is particularly notable for permits on private land. This concern has been raised by others and the reader should refer to other responses. (See Genex and Chevron comments in preceding pages.)

EXHIBIT

Finally, in an October 7, 1988 meeting, industry representatives reviewed and offered comments and suggestions concerning the proposed Application for Permit to Drill. These were compiled and submitted to Mr. Brace Hayden and yourself in a letter dated October 11, 1988. We are concerned that none of these comments were incorporated or even addressed in the draft EIS. Our major concerns still remain:

- 1.) The application needs to be more clear as to what information is required.
- 2.) The applicant needs to have reasonably easy access to the required information.

In conclusion, we appreciate the fact that our suggestions and concerns were solicited, but are disappointed that the draft copy does not appear to reflect our input. We sincerely hope that the current draft will be modified to fulfill all of the originally stated objectives.

Sincerely,

H.J. Kagie, P.E.

H. J. Kagie
Director of Safety and Environmental Affairs

The October 11, 1988, letter from the Montana Petroleum Association referenced by Balcron in its comments on the draft PEIS is reprinted immediately following this response. The rationale for including or excluding changes suggested by industry are discussed there.

The specific changes the Board believes necessary to the permit application form have been made and are reflected in Chapter Six of this final PEIS.



MONTANA PETROLEUM ASSOCIATION
A Division of the
Rocky Mountain Oil and Gas

Helena Office
2030 11th Avenue, Suite 23
Helena, Montana 59601
(406) 442-7582

Janelle K. Fallon
Executive Director



Billings Office
The Grand Building, Suite 510
P.O. Box 1396
Billings, Montana 59103
(406) 252-3871

October 11, 1988

Mr. Brace Hayden
State of Montana
Office of the Governor
Helena, Montana 59620

Mr. Kevin Hart
State of Montana
Department of Natural Resources & Conservation
1520 East Sixth Avenue
Helena, Montana 59620

Gentlemen:

Several members of the oil community met in Billings on October 7, 1988 to review the proposed two page Application for Permit to Drill which you presented for our comments at the meeting held September 29, 1988 at the Billings Petroleum Club. Representatives were present from Shell, CENEX, Balcron and Flying J as well as Tom Richmond of the Board of Oil and Gas Conservation. The industry representatives expressed two major concerns with the proposed application and the resulting process of gathering the required information.

1. The application needs to be more clear as to what information is required.
2. The applicant needs to have reasonably easy access to the required information.

In an effort to address the first concern, attached is a revised version of page 2 of the proposed Application for Permit to Drill which incorporates changes to define and clarify the type and amount of information required of the applicant. A brief discussion of the suggested changes, identified by paragraph number, follows:

2. The words "of public record" have been inserted to let the applicant know that he is responsible to report only those water wells which have been recorded with the state as required by law.

Chapter Five of the draft PEIS was intentionally unspecific in several areas because of Advisory Council wishes the document provide the Board with a wide range of options and flexibility to choose among these options. Many of the changes suggested in this letter specify what information would be collected and how the Board would use the information. When the intent of a specific change submitted by the Montana Petroleum Association (MPA) was not clear or where the suggested changes would have limited future Board choices about information to be supplied, the change was not made in the draft PEIS. The reasoning behind not making each change is discussed below.

Item 1: The inclusion of the suggested wording was not made because of concern that the reference to wells "of public record" may preclude the identification of older water wells or converted wells drilled prior to the recording requirement established in 1962. To assess potential impacts of oil and gas drilling on water wells, the location of water wells existing prior to 1962 should be known. The question becomes how to reasonably collect such information quickly. Alternate wording which would supply the information and address industry concern about limiting what data they would be responsible for collecting may be "of public record or local public knowledge." Such wording would allow a local source such as the surface owner to indicate whether a well exists within a half mile, eliminating the need to ask the operator to search for wells not recorded.

3. The location of the topsoil stockpile and centerstake are frequently changed between the time a drilling application is submitted and drilling commences. The language in paragraph 3 has been revised to prevent the needless reports of any changes in the location of the centerstake or topsoil stockpile.
4. The new format suggested for paragraph 4 allows room for the applicant to explain why a reserve pit liner is unnecessary thus expediting the permitting process.
5. The "names of residents" has been deleted. It is believed that from an environmental standpoint it is important to know someone lives near the proposed wellsite but it is not necessary to know who.
6. Paragraph 6 is deleted in its entirety. Paragraph 1 requires a topographic map be submitted with the application. It is believed the Board of Oil and Gas can determine if the wellsite is located in a significant drainage using the topographic map and therefore paragraph 6 is unnecessary.

7. and 8. The use of the word "near" is replaced with "within 1/2 mile of" to clearly define the area the applicant is required to investigate.

Page 1 of the Application for Permit to Drill was well received.

The proposed Application for Permit to Drill involves identification of nearby water wells, designated historical or cultural resources areas, designated wildlife and game management areas, as well as other pertinent cultural features. This could become a major process involving several government agencies. Because the drilling of wells is not a high priority for some agencies, there is a concern that requests for information will not be acted upon in a timely fashion. In addition, it is difficult for an applicant to know how far an investigation must go to satisfy the Board of Oil and Gas Conservation's application requirements. For example, will it be necessary to contact federal, state, local, and in some cases, even private agencies to adequately identify nearby water wells? In 1987, 348 wells were drilled in Montana. This would have generated one to two calls every day to the relevant agencies. Are they prepared to handle this?

Item 2: This suggested change was not made because the need for a given level of detail about a location, construction method, and resultant impacts cannot always be predetermined. In some sensitive settings the location of the well and pits may be important when evaluating impacts. On the other hand, many well locations may not require this level of detail. Flexibility is needed to require sufficiently accurate information when sensitive features could be affected.

Item 3: This change was not made because it was not clear what information the operator would use to determine whether a liner would be required. Allowing the operator to make such decisions would not remove responsibility to assess impacts under MEPA. The Board may have some options for assessing this type of concern through rules where direction could be given regarding measures deemed necessary to protect water quality.

Item 4: The wording "names of residents" was retained because it can be important to know who lives nearby when evacuation plans are developed around sour gas wells. Most such wells are in sparsely populated areas, so few people would be listed. When a well is in a populated area, the wording provides a mechanism to avoid listing all residents' names.

Item 5: The wording regarding 100-year floodplains was deleted.

Item 6: The addition of "within one-half mile" to replace the word "near" does not reflect the concern that for purposes of impact assessment, "near" may be more than one-half mile, particularly in sensitive settings.

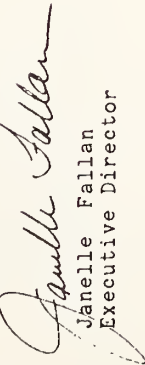


To alleviate these problems and uncertainties, it is recommended the applicant need request the required information from only one agency, the Board of Oil and Gas Conservation. It is recommended the Board assemble the required information from the appropriate federal and state agencies and provide these data. In this way, applicants will know they are checking the proper data and the State of Montana will not be overrun with requests involving the drilling of wells to the Water Rights Bureau; Fish, Wildlife and Parks and Historic Preservation Office. The Board of Oil and Gas Conservation will be in a position to better analyze each application and give a correct assessment of whether or not it is "a major action of state government significantly affecting the quality of the human environment" as directed by MEPA.

We thank you for the opportunity to review the proposed Application for Permit to Drill and hope the above recommendations will be helpful as you proceed with the Programmatic EIS.

Should you have any questions, please do not hesitate to call.

Sincerely,


Janelle Fallan
Executive Director

DRAFT

DRAFT

DRAFT DRAFT

DRAFT

Supplementary Information

- 1) Attach a topographic map or suitable equivalent of the location:
Please show the location, access route from country roads or other established roads, nearest fresh water streams, lakes, ponds, etc.
Name and distance to closest surface water if not shown on map:

- 2) Are there any water wells of public record within 1/2 mile of the location?
Yes ☐ No ☐ If yes, Location
Depth Formation

- 3) Attach a site sketch of approximate site location, showing dimensions and orientation of the location, location of pit(s) and cut/fill designations at the corners of the location.
Will topsoil be stockpiled?
Yes ☐ No ☐

- 4) Will the reserve pit be lined?

Yes ☐ No ☐ If no, please explain.

If yes, what type of lining/sealing material will be used?

- 5) Are there occupied dwellings, schools, recreation areas, parks, etc. within one mile of the location?
Yes ☐ No ☐ If yes, please show on topographic map, or attach a list showing distances and directions to residences, facilities, etc. If too numerous to list give an estimate of the number of residences or the name of the town, subdivision, or residential area.

- 6) Is this well site in the 100 year flood plain of a stream or river as shown by records available to the County Comptroller? Yes ☐ No ☐ If yes, please attach a description of any special equipment or procedures planned to avoid inundation, damage, or erosion to the surface facilities well site and wellhead.

- 7) Is this location within 1/2 mile of a designated Historical or Cultural resource area listed by the Montana Historic Preservation Office.
Yes ☐ No ☐ If yes, please give name (if named) and type resource (eg. historic site, archaeological site, etc.)

Name/type

Location _____

- 8) Does the location or access road lie within 1/2 mile of a designated wildlife refuge or game management area? (Areas managed by Dept. of Fish, Wildlife, and Parks or federal agencies? Yes _____ No _____ If yes, please indicate the name of the refuge, park or area (or approximate location if not named)

Name _____

- 9) Does the construction of the access road or location, or some aspect of the drilling operation require additional State or Federal permits? Please indicate below.

Stream Crossing Permit (apply through county Conservation District)

Air Quality Permit (May be required if drilling time exceeds 90 days and total engine horsepower exceeds 1500 hp)

Water use permit (must be filed for groundwater withdrawals exceeding 100 gpm within 60 days of water well completion)

Federal Drilling permit

Other Federal or State permit: (specify) _____

f22/drill



MONTANA PETROLEUM ASSOCIATION
A Division of the
Rocky Mountain Oil and Gas Association

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MAR 31 1989

Janelle K. Fallan
Executive Director

Billings Office
**MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION**
1010 N. 17th Avenue, Suite 510
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Comments on the Programmatic EIS on Oil and Gas Drilling
Production in Montana by Janelle Fallan, Executive Director,
Montana Petroleum Association

March 31, 1989

Issuing a permit to drill a test well for oil or gas is not a major action of state government significantly affecting the human environment, as stipulated in MEPA. More than 28,000 wells have been drilled in Montana, resulting in more than 6800 producers, with no significant impairment of the human environment.

State laws now exist to protect the rights of all parties affected by oil and gas drilling. In too many cases, MEPA has been used not to protect the human environment, but to stop oil and gas drilling by challenging the permitting process, or adding prohibitively to the expense.

Some specific concerns about the EIS:

Chapter Four contains the description of impacts and mitigating measures associated with drilling for and producing of oil and gas. The chapter details a list of "coulds" and "mights," all negative. From page 73 through page 173, the document identifies a host of perceived environmental concerns that could be associated with oil and gas drilling and production. The lengthy discussions about air, water, soil, wildlife, health and safety, fisheries, noise, land use, recreation, vegetation, social and economic effects and historical resources are all negatives and all potentials.

This negative mode may be inherent in the EIS process, but it is not supported by the impacts of the 28,000 wells drilled to date. Little note is made of industry practice to mitigate any of these negative impacts, or of their likelihood or relative importance.

Much of Chapter Five is devoted to site use and road construction. These activities occur on the surface of the land owned by the state, federal government and private parties. In the absence of infringement on the rights of others, surface owners enjoy the full use of property rights. The Board of Oil and Gas does not grant surface access permits nor does it grant rights of way or easements. For the study to conclude that the Board has responsibilities for these activities is to ignore the rights of owners. Chapter Five goes on to suggest how the Board may regulate perceived environmental concerns without addressing the rights and obligations of all involved parties.

Most of the comments from the Montana Petroleum Association represent a priori judgments supported with quotes from the draft PEIS that are taken and used out of context. While the draft PEIS concludes that most wells will not have significant adverse effects if proper measures are applied, Senate Bill 184 directs the Board to develop and adopt a process that will allow evaluation of impacts within the context of the individual drill permit review. The draft PEIS concludes that this decision is best made in consideration of problems and solutions on a case-by-case basis. Much of Chapter Five of the draft PEIS discusses options available to the Board for developing a process that will incorporate appropriate MEPA review while promoting efficient and expedient approval of environmentally sound drilling projects.

Several statements also address private property rights, Board authority, and MEPA responsibilities. The reader is referred to responses to the Genex, Chevron, and Exxon letters regarding clarification of these points.

Consideration should be given to inclusion of a statement that this EIS is sufficient to meet MEPA requirements and site specific EISs for any wells permitted henceforth are not necessary.

The Board must look carefully at the questions raised in SB 184 and repeated on Page 1. Are these points answered? There are a lot of words, a lot of discussion, a lot of charts and graphs. But does it answer the point about the methods of accomplishing drilling and production of oil and gas as may be found to be necessary to avoid permanent impairment of the environment or to mitigate long-term impacts? Incidentally, is there any significance in the changed order of the charges, between the statute and the way they are listed in the statement?

A statement that should have led the EIS is found on page 131: "Oil and gas exploration is generally a temporary activity and its disruptive effects on agriculture tend to be short term." However, the word "agriculture" could be stricken and almost any other activity or interest be substituted.

We would also like to emphasize another statement on Page 175: "In most cases, the drilling of an individual oil or gas well will not result in major adverse impacts on the environment if proper care is taken in the siting and construction of the drilling location and access road, if drilling muds and fluids and any other wastes are disposed of in an appropriate manner, if safe drilling practices are observed and if the site and road are properly reclaimed."

The EIS should not be used to change drilling requirements across the board without the implementation of rules. If, based on the findings of the EIS, the Board of Oil and Gas Conservation is to implement new regulations in more than a few specific cases, it should observe the rule-making procedures of the Montana Administrative Procedures Act.

The draft PEIS contemplates that any rule-making proceedings conducted by the Board will comply with the provisions set forth in the Montana Administrative Procedure Act.



EXODUS, INC.

Energy Exploration and Natural Resource Management
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

RECEIVED

MAR 15 1989

PO BOX 20877, BILLINGS, MT 59104

(406) 656-7393

March 10, 1989

Mr. Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, MT. 59620-2301

RE: Montana Oil & Gas Draft PEIS

Dear Mr. Hart,

The first general comment I would like to make on the Draft Programmatic Environmental Impact Statement (Draft PEIS) on Oil and Gas Drilling and Production in Montana is to extend the public hearing deadline beyond March 31, 1989, by support of Montana Senate Bill 201 (Keating) or some other provision. The sixty day hearing period is far too short to review this document, which in complete form, Draft PEIS and Appendix, was not distributed for review before February 22, 1989.

I would also suggest that the Appendix volume be integrated into the Draft PEIS. The information contained within the Appendix volume is too important to be distributed separately upon request. Data and statistics which could be used to support the positive impacts of the oil and gas industry in Montana are published only within the Appendix volume.

I will now address my comments more specifically on the Draft PEIS on a chapter by chapter basis. I have no specific comments on chapters one and two.

Chapter three, entitled "Roles and Responsibilities for Oil and Gas Activities" needs to include all current Montana state statutes (Montana Code Annotated) pertaining to oil and gas drilling and production. The Draft PEIS should address each statute, outlining how the system proposed in the document. (Draft PEIS) would improve or not improve the current laws in force.

Chapter four "Description of Impacts and Mitigating Measures" Air Quality section should contain data and conclusions based on actual DUES air quality measurements for drilling and production sites not estimated assumptions.

A comment period totaling 105 days was held on the draft PEIS and Technical Appendix. This comment period ended May 15, 1989.

Summaries of pertinent information about the industry have been summarized from the Technical Appendix in the Social and Economic Effects section of the draft PEIS. The industry is an important component of Montana's economy. The addition of this detail in the draft itself would not improve the discussions of options available for the Board to meet the requirements of Senate Bill 184.

Please refer to Cenex response II.

It would not be practical or necessary to collect air quality monitoring data for individual drill or production sites to assess air quality concerns. To attempt to complete this level of analysis would be expensive. The data contained in the draft PEIS was taken from available sources including environmental assessments prepared for individual wells and emission factor data from EPA, collected from tests designed to measure emission from various size and type gas and diesel engines.

The Health and Safety section should outline the numerical probability of acute health effect of oil and gas drilling and production in Montana. Page 111-112 of the Appendix volume states, "Using a blowout probability factor based on the Alberta and Texas frequency data, the risk of a surface release occurring and causing an acute health effect over a 20-year period at a distance 1.5 km from the well was 0.000240 percent." I am certain using a blowout probability factor based on Montana frequency data would yield a percentage less than the very small 0.000240 percent for Alberta and Texas.

The wildlife section should contain the actual number of animals killed directly by oil and gas drilling and production in Montana. If no kills are documented it should be so stated.

The Social and Economic section of the Draft EIS needs to point out that every industry and business, not just the oil and gas industry, in Montana is affected by cyclic economic conditions controlled by national and international markets. Montana has based its economy on these cyclic business conditions for well over one-hundred years. The tax revenues generated by oil and gas exploration and production are a very significant portion of the Montana tax base and public officials must carefully consider the cyclic economic conditions before spending these tax revenues.

Chapter Five "Program Alternatives" needs to outline a specific minimum time required for environmental review on all oil and gas exploration and production proposals.

Finally, it should be noted that each regulation and delay imposed upon the oil and gas industry, or any other industry for that matter, is a cost of doing business. All of these costs are carefully considered by the industry before a project is initiated. When the cost of doing business in Montana becomes too great the oil and gas industry will look elsewhere and most companies think that time has arrived.

Sincerely,



Douglas M. Clark
President

cc: Mr. Charles Main
Administrator, Oil and Gas Division
DNRC, Billings, Montana

This comment misses the intent of the Health and Safety section. Paragraphs 4 and 5, left column on page 108 of the draft PEIS more appropriately summarizes well blowouts in Montana and Wyoming. Comparing Montana's experience with blowout data from Alberta and Texas can be misleading because of differences in types of drilling done and geologic settings. The issue in the health and safety sections boils down to whether, given the location of a particular well and geologic setting, adequate precautions have been taken to reasonably protect against blowout, and in the rare event that a blowout were to occur, are plans adequate to protect persons at the well site and in the surrounding area. The approaches Montana and surrounding states have taken in these areas are summarized in Table 40 of the draft PEIS.

The commenter suggests that the wildlife section of the PEIS is flawed because it does not contain data on the actual number of animals killed directly by oil and gas activities in Montana. The comment demonstrates a basic misunderstanding of the issue of impact as it relates to short-term and long-term impacts.

Animals can be directly killed by falling into mud pits or reserve pits; through contact with oil, brine, or other toxic substances; exposure to hydrogen sulfide; and collisions with vehicles, powerlines, and other structures. Determining the number of animals killed on a statewide basis through direct effects of oil and gas development would require intensive monitoring of all oil and gas developments (including access roads) on a continuous, year-round basis. Such a commitment of resources was not done for the PEIS since the effort would be very time consuming and of limited value for the Board's future use.

More importantly, indirect impacts of oil and gas development generally are more significant to wildlife than are direct impacts. Indirect impacts resulting from habitat loss, displacement, stress, harassment, and illegal shooting can interact to reduce reproductive success of local wildlife populations as well as the capability of a given area to support optimum wildlife populations in the short and long term. The significance of indirect impacts are of greater concern because larger numbers of animals can be affected. Such effects have much greater potential to result in adverse impacts on population dynamics and habitat quality.

The further clarification of this point would not change the analysis contained in the Social and Economic Effects section of the draft PEIS.

The process selected by the Board to evaluate drill permits will be based on the least amount of time and expense necessary to complete review while promoting environmentally sound oil and gas development.



Shell Western E&P Inc.

A Subsidiary of Shell Oil Company

P.O. Box 576
Houston, TX 77001

February 21, 1989

RECEIVED

FEB 24 1989

**MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION**

Kevin Hart, Project Manager
Department of Natural Resources & Conservation
Board of Oil & Gas Conservation
1520 E. Sixth Avenue
Helena, MT 59620-2301

Dear Mr. Hart:

SUBJECT: COMMENTS DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT
(PEIS) - OIL AND GAS DRILLING

We want to thank the Department of Natural Resources and Conservation for the opportunity to comment on the draft Programmatic Environmental Impact Statement (EIS) on oil and gas drilling and production in Montana. We appreciate your efforts to provide a concise and efficient form for review of proposed oil and gas activity under the Montana Environmental Policy Act (MEPA). We are still concerned with the effort and time involved for prepared supplementary information listed on page 200 of the draft EIS.

Shell Western E&P Inc. is the largest producer of oil and gas in Montana. Our operations in the Cedar Creek Anticline Unit include 800 producers and injectors. Routine drilling operations may include the completion of 3-6 wells in a given program. We would like to see a mechanism whereby generic supplementary information could be submitted and reviewed in one package. This approach could maximize the efficient use of DNRC staff time as well as SWEPI's and our consultants' time.

Our technical comments are included in Table I. Please send us further information regarding subsequent drafts of the PEIS and final PEIS.

If you have any questions please contact W. F. N. Kellendorf of my staff at 713/870-3426.

Sincerely,

C. A. Miller

C. A. Miller
Division Safety, Environmental, and Administration Manager
Western Division

RWZ:LGC

ENEC8904805 - 0001.0.0

The concern expressed by Shell regards supplementary information suggested as part of the revised drill permit application form. An explanation of these concerns is contained in the October 11, 1988, letter which is referenced earlier in the letter from Balcron. The Board will revise this form to balance the time and effort required for collecting such information while promoting efficient and expedient review.

The Board likes the suggestion by Shell to consolidate information needed for review of a drilling program into one application package. The Board's process will incorporate a mechanism to allow this suggestion to work.

Shell makes several technical suggestions for changes to the draft PEIS. Responses to these comments follow:

TABLE I
TECHNICAL COMMENTS PEIS OIL AND GAS DRILLING AND PRODUCING OPERATIONS

PAGE	ITEM	COMMENT
60	Paragraph 7 - "All salt water wells...before June 1988"	Should read "...before June 1989" (applications had to be in before June 1988) [40 CFR 144.21]
80 - Table 5	"Fluoride MCL 1.4-2.4 ppm"	Should read "4.0 ppm" [40 CFR 141.11(c)1]
98 - Table 14	"H ₂ S"	Should read "H2S"
98 - Table 14	"VOC's (nonmethane)"	Should read "VOC's (nonmethane, nonethane)" [40 CFR 60.630 Subpart KKK]
104	Paragraph 1 "malfunc-tioning"	Should read "malfunctioning"
138	Item (3) "- bury transmission lines"	We feel this is cost prohibitive and should be deleted.
153	Mitigation (7) "asfeasible"	Should read "as feasible"

Page 60. We agree. The 3rd paragraph, line 10, right column should read "June 1989" rather than June 1988.

Page 80, Table 15. We agree in part. Montana's regulation ARM 16.20.201-260 currently lists the maximum contaminant level for fluoride in drinking water at 2.4 milligrams per liter (mg/l). The federal standard for flouride is 4.0 mg/l. Montana will likely revise its standard within the next 6 to 8 months to meet the federal standard. Other revisions to drinking water standards are noted in Chapter Five of this final PEIS.

Page 98, Table 14. We agree with the comments. Other changes have been made to this table and it has been reprinted with all correction (see Chapter Three).

Page 104, line 7, paragraph 1, left column. Typographical correction made.

Page 138, right column. Comment noted. The measure objected to is an option for reducing cumulative visual impacts. The use of this measure must consider the degree of impact, cost of implementing the measure, and whether the reduction in adverse impacts through use of this measure is justified.

Page 153, item 7, right column. Typographical error corrected.



NORFOLK ENERGY INC., Five Post Oak Park Houston Texas 77027 (713) 877-8746

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MAR 29 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

March 17, 1989

Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

Attention: Mr. Kevin Hart, Project Manager

Re: Programmatic Environmental Impact Statement (PEIS)
on Oil and Gas Drilling and Production in Montana

Gentlemen:

Norfolk Energy Inc. (Norfolk) offers the following comments concerning the above referenced PEIS.

As background, Norfolk has been operating on a continuous basis in the State of Montana since the mid-sixties. The company was previously known as High Crest Oils and as Tricentrol United States, Inc. and is incorporated in the State of Montana. We currently operate over 400 wells in Montana and have been, in certain recent years, the state's largest producer of natural gas. During this time we have drilled several hundreds of wells under the guidance of the Board of Oil and Gas Conservation and/or the Bureau of Land Management of the Federal Government. We anticipate drilling or participating in about 25 wells in Montana during 1989.

Our major concern in implementing the PEIS is that the process of obtaining drilling permits could become very lengthy, tedious, and most importantly, inconclusive. Primarily, we fear the permitting process will get tied up in appeals involving other departments, resulting in many non-impact wells being delayed and possibly not drilled at all. The state certainly does not need to make the decision for drilling a well in Montana any more difficult than they are at present.

Decisions to drill wells in Montana involve a comparison with prospects which could be drilled in other states. One of the major factors which effects our decision is the simplicity and relative predictability of the permitting process. We feel that the potential for delays in drilling could become an important factor in the decision to spend our capital expense dollars elsewhere.

Norfolk suggests that the Oil and Gas Board determine areas where an environmental impact statement will automatically be required and publish a map outlining these areas. In other areas, applications for permits would be

To meet the requirements of Senate Bill 184, the Board will develop an environmental review process that is efficient, workable and promotes the timely approval of environmentally sound drilling proposals. This process will be designed to encourage reasonable environmental protection measures when necessary.

The Board does not support the concept of a general map that outlines where an EIS would be required. To develop such a map would require predetermination of environmental conditions for each well. Lack of knowledge about these conditions could result in deficient environmental review. The Board favors use of a checklist review process that stipulates standard precautions for most wells and allows individual wells to be evaluated with reference to specific problems likely to be present.



Mr. Kevin Hart, Project Manager
March 17, 1989
Page 2

routinely granted under a system identical to that presently in place, except where the Board determines the drilling as too close to sensitive areas not on the "sensitive area" map and the general guidelines referred to below are insufficient. This map would help operators in their decision-making. The Board should adopt general guidelines governing all permits, within our without mapped areas, dealing with such things as H₂S, buildings, towns, and water courses. Any guidelines which may be implemented by the Board to determine if a drilling permit requires an environmental impact statement should be published for operators' guidance and should enable the Board to make timely decisions. The decision of the Oil and Gas Board to grant a drilling permit, with or without an impact statement, must be at the Board's sole discretion.

Norfolk will urge the state legislature to reconsider implementing the Programmatic Environmental Impact Statement and allow the Board of Oil and Gas Conservation to continue functioning as it has so well in the past. The Board has done an excellent job in reviewing, to the fullest extent, the possible environmental impact caused by the drilling and producing of oil and gas wells. Implementing the PEIS except in areas designated "sensitive" is not required and will only add to the red tape of bureaucratic controls which will neither enhance nor improve the existing systems.

To restate our position, to make it more difficult to drill a well by adding an extensive and prolonged permitting system could severely impede the advancement of the oil and gas industry in your state.

Sincerely,

James T. Walters
Vice President - Operations

JTW/caw

Croft

OIL AND GAS PRODUCERS

JERRY CROFT, PRESIDENT

PETROLEUM CO.

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MAR 07 1989



Department of Natural Resources and Conservation
Board of Oil and Gas Conservation
Attn: Kevin Hart, Project Manager
1520 E. Sixth Avenue
Helena, MT 59620-2301

RE: Programmatic Environmental Impact Statement
Oil & Gas Drilling and Production in Montana

Gentlemen:

66 I have read the Draft EIS of January 1989. I was amazed at the amount of data amassed and compiled. I found it was like perusal of an old world almanac.

I wonder what sort of permitting process is necessary to start a housing subdivision, trailer court, car lot, junk yard, city dump, hog farm, cattle feed lot, irrigation system, to cut timber or break up sod for farming. Each and every one of these have more of an effect on the environment than the drilling of an oil or gas well.

I strongly believe an environmental impact statement is not needed in the permit process for any well drilled on fee minerals.

The EIS contemplated will greatly extend the permit process on some wells. On wells drilled under State of Montana oil and gas leases the state can compensate for this delay by extending the lease termination date while the permit is being processed and by not charging compensatory royalty during this time. However, on fee leases such an approach is not possible. Therefore, I feel the EIS permit process should not apply to fee leases. On fee leases there are just two parties involved, the lessor and the lessee. They are free to negotiate any mutually agreeable stipulations they want. Existing land use regulations and public nuisance laws have enough teeth to prevent any gross "environmental" damage which may occur by drilling on fee minerals. The problem of the EIS being initiated stems from neighbors of fee mineral owners wanting the state to say no to their neighbors so they won't have to.

I am familiar with three environmentally controversial wells being proposed in the last few years - American Petrofina - Hall Creek, Chevron - Badger-Two Medicine, Sohio - Bridger Canyon. Two of these are federal and the state lacks primacy on these. The third well, Sohio, was drilled on fee minerals. However, existing land

This comment expresses a number of personal opinions and indicates certain misunderstandings about the MEPA process and what is required of the Board when making drill permit decisions.

MEPA applies to any state agency action involving a permit or approval. The process used by the state agency when reviewing the impacts of these projects also must comply with MEPA.

The Board must comply with the provisions of MEPA when it issues permits to drill on private or state-owned land. The issue of whether neighbors disapprove of the drilling will not be a factor in the Board's evaluation of the impacts.

THE ABOVE COMMENT

March 6, 1989
Page 2

use laws and community activity were sufficient to insure every possible precaution was taken to protect the environment. This well turned out to be a dry hole as do most.

Fortunately, the state did not hire any one or set up another agency to supervise permitting environmentally sensitive wells just on the basis of Sohio's Moatts well. If they had it would have been a waste of time and money.

Any state that taxes oil and gas production as heavily as Montana should do all in their power to attract oil and gas drilling. There are very few frontier areas left to find sizeable reserves of hydrocarbons. Fortunately Montana has a few of these areas. However, with this EIS in place the decision of where to drill and when to drill or even if to drill at all will be up to a committee that is not interested in finding hydrocarbons.

I believe it will be found that the time to impose environmental drilling and production stipulations will be when the lease is issued. Thus it will fall on the state to environmentally inventory all its unleased minerals and prepare environmental impact statements prior to leasing for oil and gas. The eventual outcome will be to do the same for all surface leasing also.

Sincerely,


Jerry Croft
President

The Board of Oil and Gas Conservation continues to be responsible for the issuance of permits to drill in Montana. The process that the Board develops to meet its environmental review responsibilities will promote the expedient approval of environmentally sound drilling proposals.

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FEB 24 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

J & L Oil and Gas, Inc.

407 Stapleton Building
P O Box 3421
Billings, Montana 59103

JAMES E. HAUPTMAN, PRESIDENT

February 23, 1989

Phone (406) 252-3663

Mr. Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

RE: Draft Programmatic Environmental Impact Statement
on Oil and Gas Drilling and Production in Montana

Dear Mr. Hart:

As I am sure you are aware, the state of the oil and gas exploration business is at an all time low in Montana and the surrounding Rocky Mountain states. Last week there were three drilling rigs operating in Montana. By contrast, there were seventeen rigs operating in Wyoming.

I have been involved in the oil and gas business for the past sixteen years. During that time I have made many trips to Denver and other major cities to try and find funding for various ventures. Many of the industry people in other cities have lived in Montana at one time or another and the typical conversation with them always seems to end with a statement such as: "Montana is a great place to live, if you can afford it." In the same vein, industry people have always tended to shy away from oil and gas ventures in Montana in favor of North Dakota or Wyoming as the taxes are the highest in the nation in Montana. My point in stating the above facts is to ask that you and your committee make any checklist needed for a drilling permit as simple as possible in order to not send another "anti-business" message to the oil and gas industry as a whole.

Sincerely,



James E. Hauptman
JEH:s

The Board is dedicated to the development of a process under Senate Bill 184 that promotes the expeditious approval of environmentally sound drilling and production of oil and gas in Montana.

Local Government and Association Comments



NORTHEAST

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MONTANA LAND AND MINERAL
MAR 16 1989

OWNERS ASSOCIATION, INC.
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

PHONE 406-385-2457

WESTBY, MONTANA 59275-9503

March 15, 1989

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Kevin Hart
Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena MT 59620-2301

Dear Mr. Hart:

You will probably recognize items 1-7 as being testimony from the EIS meeting in Sidney on March 1. The remainder of the additional comments are listed for consideration of the EIS.

1. Vera Henderson presented documentation of the polluted stream, First Hay Creek, contaminated from drilling fluids of an oil well in Richland County.
2. Bill Petersen testified the Revised Drill Permit Application, Figure 48, pages 199 & 200, should contain these additions:
#9. Surface Owner contacted
#10. Did the surface owner contribute information to 1-8?

Yes _____ No _____

3. Anne Finnicum testified on the air pollution they are experiencing from H₂S emitted from two oil wells in Richland County. The pollution is causing health and stress problems for the Finnicum's.

4. Connie Wilson expanded on the Finnicum situation and also commented about page 94 of the EIS regarding saltwater pipelines and collection and disposal systems.

5. Richard Iverson expressed his concerns about H₂S hazards affecting the Finnemics and other human life as well as livestock and wildlife.

6. Sherill Henderson presented one instance of a ruined water well in Richland County. The contaminated well was a result of improper waste disposal from drilling an oil well.

7. Dennis Trudell said the EIS should address locations for waste disposal, trenching of waste pits, flood plains, copies of drilling permits to landowners and the description of soil and depth of water on proposed well sites.

The following responses address each of the specific points raised in the letter.

- 1) Information regarding pollution of First Hay Creek is discussed and presented in the Technical Appendix volume, pages 63 and 64. The draft PEIS, Table 11 summarizes this problem under Site 1.

- 2) The suggestion for the addition of landowner or surface owner review to the drill permit application has merit. The Board will consider this addition to the revised application form.

- 3, 4, 5) The Board is aware of the problems experienced by the Finnemics and is working with the present well owner and operator to correct them. The draft PEIS sufficiently describes the effects of H₂S and the potential for problems from wells containing this gas.

- 6) The problems presented in drilling of this oil well next to a water well are summarized under Site 3, page 65 of the Technical Appendix volume and on Table 11 of the draft PEIS (page 91).

- 7) The draft PEIS addresses the issues raised in this comment in the impacts chapter and Chapter Five. The areas of waste disposal and proper measures to protect water quality during drilling are topics for Board rule revision. The Board will consider options for including appropriate landowner notice input into the drill permit review process, especially regarding information about soil type and depth of water at proposed well sites.

8. Page 5. Explanation of taxes- especially the Resource Indemnity Trust Tax. RIT should not be used or considered if company is still operating in the state.

9. Page 61. Bond should never be released without inspection and approval by the Oil and Gas Board. If approved as rule states, there would be no need to dip into RIT. "UNDER NO CIRCUMSTANCES ARE WELLS ON STATE OR PRIVATE LAND REMOVED FROM THE OPERATOR'S BOND WITHOUT INSPECTION AND APPROVAL BY THE BOARD'S STAFF." (last sentence)

10. Water from producing oil well-"Data for 1987 indicate that the 4,132 active oil wells in Montana produced an average of 2,600 bbls (109,200 gallons) of water (DNRC 1987)." Per year or per month? These figures are doubtful and debatable. Page 87.

11. Page 92 & 93. Table 12. Description of Oil-and Gas-Related Complaints Received by Water Quality Bureau. What about Oil and Gas Commission complaints? Association has more data of complaints on file than listed in EIS.

12. Page 104. Table 19. Summary of Well Complaints in Montana by County. Sheridan County is not included. Association was formed in Sheridan County due to complaints of improper disposal practices from oil production.

We agree that extensive study has been done to prepare the EIS. However, this would not have been necessary if various agencies and departments in Montana had enforced their rules and regulations.

If possible, could you please send a copy of the transcript from the EIS meeting in Sidney on March 1?

Please feel free to contact any association director if you have any questions. Thank you.

Sincerely,

NMLMOAI BOARD OF DIRECTORS

NMLMOAI/cn

c: NMLMOAI Directors

Connie Wilson

8) The discussion of taxes on page 5 was presented only as an overview of taxes from oil and gas development. It is state policy that these funds not be used when a liable party can be found.

9) As is noted on the referenced page of the draft PEIS, this is current practice and procedure.

10) It is not clear from this comment whether the cited figures are being objected to because they overestimate or underestimate the average amount of water produced. This information was compiled from data collected by the Board from operators statewide and refers to barrels of water per year. To put these numbers into different perspective, the figures cited would be possible from a well operating 270 days out of the year and producing water at the rate of about 9.6 barrels of water per day. Wells may produce more or less water. The intent of the statement was to show that the volume of produced water from wells may be substantial.

11, 12) The purpose of Table 12 and Table 19 was to illustrate the sort of problems that may exist with oil or gas wells. These lists were not intended to be exhaustive.

Montana Land and Mineral Owners Association

P.O. Box 1301
Butte, Montana 59501

May 13, 1989

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MAY 16 1989

MONTANA DEPT. OF NATURAL
RESOURCES & CONSERVATION

Mr. Kevin Hart
Department of Natural
Resources and Conservation
1520 E. 6th Ave.
Helena, MT 59620-2301

Dear Mr. Hart:

The Montana Land and Mineral Owners Association (MLMOA) representing approximately 1.5 million acres in North Central Montana, wishes to take this opportunity to comment on the State of Montana's Programmatic Environmental Impact Statement (EIS) as required under the Montana Environmental Policy Act (MEPA).

We have reviewed the draft EIS dated January 1989 with the concerns of our membership primarily in mind, but also recognizing the overall environmental concerns listed in very lengthy and specific detail. It is regrettable that no agricultural group, to our knowledge, has seen fit to finance and research the EIS in question in order that all facets might be considered.

It seems so inappropriate that very little space in this voluminous document has been devoted to and by the land and mineral owners themselves, the very people who will be most directly affected by such drilling activity and whose livelihood depends on the production, careful development and utilization of their land and mineral resources.

We ask that you consider that the extensive comments by various governmental agencies, Fish & Game as an example, all made at taxpayers' expense, might well represent the thoughts and wishes of those agencies rather than those landowners with their feet on the ground and the responsibilities of that stewardship.

The same might apply to publicly-owned lands, perhaps 25% of Montana federally-owned as an example, whose agencies already have extensive permitting procedures to protect their respective environments and for whom additional permitting procedures would only serve to discourage proper and much needed development if our state is to benefit.

The Board will evaluate the appropriate role for owners of land and minerals in the drill permitting process. The Board is considering options to revise the drill permit application form to include information that would be obtained from the surface owner. The Board believes that the concerns of the land and mineral owners will be served through the development of a quick and efficient environmental review process.

Our association has been in existence for nearly 15 years and from experience, we have developed mineral-related policies and forms which we feel are acceptable both to our membership and the industry to their mutual benefit. We enclose copies of policies best related to the questions at hand. We have worked extensively with the Montana Oil and Gas Commission, have related various problems to them, and have found them good to work with. A most recent example is a new seismic hole plugging procedure in glaciated areas resolved through the cooperation of the Montana Bureau of Mines and Geology, International Association of Geophysical Contractors, Montana State Lands, and our own association as a catalyst. We look forward to working with them in the future if a need arises.

A present and continuing concern of our association is the protection of water wells. We note as an example, in the revised drilling application, Figure 48, that you use a 1/2 mile radius for water wells. We feel this short a distance in the glaciated areas of Montana might be inadequate. A mile might be more appropriate with surface casing through the producing formations. We will be watching this one.

Our association, the first of its kind in Montana, was originally formed by land and mineral owners who recognized problems in the development of their mineral resources. We probably could be identified as rather "militant" in our initial efforts! Now we, through our membership, feel we have a good understanding and working relationship with the industry and the State Oil and Gas Commission in the orderly and environmentally safe development of our mineral resources.

We ask that you consider the concerns of the MLMOA as people with their "feet on the ground" in the development of an EIS compatible with the orderly development of the mineral resources that our state needs for its economic progress, and that you not allow the "tail to run away with the dog" in the formation of new and crippling rules and regulations.

Respectfully,


Russell Unruh, President

RU/GG/sn

Enclosures



Montana Land and Mineral Owners Association

P.O. Box 13011

Butte, Montana 59501

October 23, 1985

Dear Land and Mineral Owner:

This letter is to accompany the MLMOA-2 Oil and Gas lease form. The purpose of this letter is to advise you of additional matters to consider before entering into an oil and gas lease besides those items specifically enumerated in the lease form. First we must say that it is impossible to write a lease form that will fit every mineral owner. Your situation may be unique in some aspect and you should carefully consider not only what the lease does say but also what it does not say. You may also consider seeing an attorney or someone else you are familiar with who has some expertise in oil and gas leases. Do not be hurried by a lease broker. If he is reputable he will allow you time to study his lease or your lease before you sign. If he will not allow that extra time, you probably don't want to enter into a lease with him anyhow.

With respect to the MLMOA-2 lease itself, there are several items we feel should be pointed out. First the MLMOA-2 lease has those letters in the upper left hand corner of the lease. If your lease does not have that inscription, you may not have the lease form prepared by your association. Also make sure the number is 2. There is also a MLMOA-1. The MLMOA-2 supersedes the MLMOA-1.

You will notice that the second paragraph of the lease contains the words "exclusively" and "exclusive." Some attorneys and other lease advisors take the view that those words should be stricken from the lease. Others point out that a company may have an exclusive right to explore even if the word exclusive is not used. With an exclusive right, for instance, no seismic company could operate on the leased property without the consent of the lessee.

We feel that the best view is to specify what is intended. Since most leases are in relatively unexplored areas and oil and gas companies are unwilling to sign leases that are not exclusive, we have included the exclusive language. However, if you wish to enter into a lease that is not exclusive, your lease should say that the right is non-exclusive and should say in what respects it is non-exclusive.

In paragraph number one, the term of the lease has been left for you to fill in. Most leases today are for from three to five years. Only occasionally is a ten year lease signed. Before agreeing on a term, you might want to try to find out what is normal in your area and why.

Paragraph two dealing with royalty allows you to negotiate the amount of royalty you will receive. The standard is one-eighth. However, that amount is not magic and in areas where there is already production, larger amounts are sometimes found.

MLMOA-2

19

of

HEREIN REFERRED TO AS THE "LESSOR" (WHETHER ONE OR MORE) AND

OF
HEREIN REFERRED TO AS THE "LESSEE" (WHETHER ONE OR MORE).

[illegible]

State of _____, described as follows:

For the purpose of determining the amount of any money payment under this lease this land shall be considered to contain

1. TERM. Subject to the other provisions of this lease, this lease shall remain in force for a term of _____ years from the date herein called "primary term" and as long thereafter as oil or gas is produced from said land or as long thereafter as lessee is engaged in actual drilling or reworking operations on said land as hereinafter provided.

[illegible]

3. SHUT IN GAS WELL. If the well capable of producing gas is shut-in such well shall not be considered to be producing gas in paying quantities. Nonetheless Lessee shall be entitled to extend this lease beyond the primary term by paying or tendering to lessor on or before the anniversary date of this lease following the expiration of the primary term, and annually thereafter while such well is shut-in, for a period of _____ years after the expiration of the primary term, an amount equal to \$_____ dollars per acre held under this lease by such shut-in well. Such payments shall under no circumstances be construed as continuing the lease beyond the above stated term period. Payments may be tendered to lessor or to lessor's credit by check or draft mailed or delivered to the depository bank designated by lessor in writing. If the shut-in well is shut-in with production casing in such well it is partitioned and a gas flow test disclosed to the well in production. Until such testing shall have been run and the gas flow tested, no well shall be considered "shut-in".

4. LESSOR'S GAS USE. Lessor shall have gas fee of charge from any gas well on the leased premises for use in lessor's buildings, structures, and improvements now existing or hereafter to be constructed for domestic, farming and ranching purposes provided that for each month the amount of gas used by lessor shall not exceed _____ mcf of gas per _____ (time period). Lessor shall make his own connections from the well and the use of the gas shall be of lessor's sole risk and expense. Lessor shall have the same rights as are now provided to him as from gas wells located on lands with which the leased lands are pooled or unitized.

5. RENTAL. If no well be commenced on said land on or before one year from the date hereof, this lease shall terminate as to both tracts from wells located on lands with which the leased lands are pooled or unitized.

_____ Bank at _____, or its successors, which shall continue as the depository of any and all moneys payable under this lease regardless of changes in the ownership of said land or of the oil and gas or the rentals to accrue hereunder, _____ Dollars, _____ which will operate as rental and cover the privilege of delivering the commercial use of a well for one year from said date in like manner and upon like payments or tenders, the commencement of a well may (but be not limited to) the periods successively. All payments of tenders may be made by check or draft of lease or any realties thereon, mailed or delivered on or before the rental date, either directly to lessor or assigns or to said depository bank.

6. **SEGREGATION CLAUSE.** Production operations shall be segregated by well, and the proceeds of production operations shall not serve to extend the primary term of this lease nor to allow the lease to be extended by operations on other lands. The proceeds of production operations shall be segregated by well, and the proceeds of production operations shall not serve to extend the primary term of this lease nor to allow the lease to be extended by operations on other lands. The proceeds of production operations shall be segregated by well, and the proceeds of production operations shall not serve to extend the primary term of this lease nor to allow the lease to be extended by operations on other lands.

b. **CESATION OF PRODUCTION.** If the lessee commences additional drilling operations within 60 days after the expiration of the term of the lease, the lease shall terminate unless the lessee commences the payment of rentals or royalties on a continuing basis. If the lessee ceases drilling operations within 60 days thereafter, or, if it is within the term of the lease, it ceases drilling operations within 90 days thereafter, then the lessee shall pay the payment of rentals or royalties during the period of the cessation of production. In the event of such drilling or reworking operations, or if the lessee is drilling, reworking or operating in the term of this lease, this lease shall remain in force during the diligent prosecution of such operations. If production results in any form, then as long thereafter as production continues.

9. **LESSOR INTEREST.** If the lessor owns less interest in the above described lands than the entire and undivided fee simple estate therein, then the royalties and rental herein provided shall be paid to the lessor only in the proportion which his interest bears to the whole and undivided fee. However, such rentals and royalties shall be increased at the next rental paying date after lessee has been notified of lessor's acquisition of additional interest by reversion or otherwise.

[illegible]

In paragraph three we recommend that the blank be filled in with five years. This is a new provision as far as this limitation is concerned and may be resisted by the oil company. In the past under most leases, oil companies had the right to hold land forever with a shut-in gas well unless taken to court. We feel that you should resist any such unlimited provision and that extending the lease something in the neighborhood of five years beyond the primary term because of a shut-in gas well is reasonable.

Paragraph six is what is commonly referred to as a Pugh clause. This limits the amount of land held by a producing well after the end of the primary term of the lease. On gas wells this would normally be 640 acres and on oil wells, it would be 160 acres. Other amounts could arise, however, if the oil and gas board gave approval to a different spacing.

Paragraphs twelve and thirteen both contain distances you may want to change. Most leases require pipelines to be buried below plow depth. That may be acceptable to you, but you may want to specify what that means as is done here by stating six feet. Also with paragraph thirteen, state law requires no well be drilled closer than 200 feet to houses, etc. We felt that at a minimum, that distance should be 600 feet unless specific approval is given for less. You may want to consider increasing the distance depending on your circumstances.

As a final note, you may notice that this lease does not contain a pooling clause. Montana law allows the oil and gas board to force pool land to make up a spacing unit if the parties will not all agree to pooling. That permission is routinely given by the board. In addition most oil and gas companies take the position that they have a right to pool land they have leased with other land as an unstated term of any lease. The least that any pooling clause does is to confirm that right. At worst pooling clauses given expanded power to the lessee. Since companies usually will allow you to strike a pooling clause and because there is specific state law on the subject, we felt it best to not include a pooling clause.

We hope that you find this lease form useful. We urge you to have the oil and gas company use this lease rather than their own. However, if you do decide to use their form, consider adding some of the provisions from the MLMQA-2 form. Oil companies are not inflexible. They seldom offer their lease form on a take it or leave it basis. Rather, they are willing to do some negotiating.

Finally, let us say again that if you do not know anything about leasing your mineral rights, talk to someone who does before you sign. The time to understand your rights is before you lease rather than after a problem has arisen.

Sincerely yours,

MONTANA LAND AND MINERAL
OWNERS ASSOCIATION

SEISMIC EXPLORATION POLICY
(Revised 1988)

The Montana Land and Mineral Owners Association, in an effort to make seismic exploration a safe, orderly and beneficial arrangement between the surface user and the seismic industry, offers the following guidelines to their membership:

1. We must first emphasize that although actual surface damage might appear to be the most apparent indication of damage to the surface user, the most serious damage in the form of improper plugging of test holes causing damage and intermixing of subsurface water strata might well be the most long lasting and damaging. Thus, we emphasize that in any seismic testing, the surface user must insist and observe that plugging be done within the rules of Subchapter 5 of the State Oil and Gas Conservation Division. We offer copies of these rather short, easily understandable rules upon the membership's request.
2. The Montana Land and Mineral Owners Association, in order to provide proper communication and understanding between the parties involved, offers a standardized Association Seismic Permit form to be filled in by the seismic company prior to any seismic exploration. This form provides much of the information regarding the seismic company to the user as provided in 36.22.503 of the Commission's rules for the surface owner's protection. It further clarifies such points as damages, use of water, access routes, plugging procedures, etc. before any work is started. We recommend its use to prevent misunderstandings.
3. As a guideline in determining average damage rates, your Association recommends average seismic hole damage of \$100.00 per hole on grassland, not by mile, and with no adverse weather damages. Damages for test holes in cropland to be \$100.00 plus loss of production at current market prices. Additional damages for adverse weather road damages to be based on severity and the efforts of the seismic company to repair them. The same to apply to fence damages and their repair or the lack of repair.
4. As a guideline in determining average damage rates for seismic testing by various variations of vibrator, thumper, P-Shooter, or similar seismic testing trucks, we recommend damage payments of \$500.00 per mile on grassland plus loss of production at current market prices on cultivated lands. Additional adverse weather, fencing, and so forth, damages as per item #3 above.
Combination vibrator plus shot holes to be the above \$500.00 per mile plus \$100.00 per shot hole regardless of depth.
We further suggest that all drive-arounds to existing gates or coulees detours be paid for at agreed-upon mileage damage rates.
5. We recommend that the surface owner specify on their seismic permit that notification be given him before any activities take place on his land. We feel the present plugging rules of the Oil and Gas Commission 36.22.503 allowing plugging procedures different from the Commission's rules by separate agreement might authorize procedures that might intermix and contaminate underground water strata of their own and adjoining lands and should not be allowed by any such agreement in the seismic permit form or otherwise. Thus, we strongly suggest that advance notice of plugging be required and observed by the surface owner. We consider this very important.
6. As a service to our membership, and as an aid to the State Oil and Gas Commission in implementation of their very important Seismic Exploration rules, the Montana Land and Mineral Owners Association will assist its membership in bringing what its directors determine to be violations of these rules to the attention of the Commission.
7. As in our drilling policy, our Association will, upon a member's request, publish flagrant violations in our newsletter and notify the operator involved.

STANDARDIZED SEISMIC PERMIT FORM

STATE PERMIT NUMBER _____

Seismograph Company _____

Home Office Address _____ Phone _____

Local Office Address _____ Phone _____

Project Name _____ Client _____ County _____

State _____ Party Number _____ Date Permitted _____

Line Number _____

Description of Property _____

The above-described property belongs to:

Name _____ State _____ Address _____ Phone _____

City _____ State _____ Address _____ Phone _____

Surface Lessee:

Name _____ Address _____

City _____ State _____ Phone _____

Mineral lessor been contacted and permission given? Yes _____ No _____

Property Owner has been contacted by: Letter _____ Phone _____ In Person _____

Surface Lessee has been contacted by: Letter _____ Phone _____ In Person _____

Payment Agreement: Divided _____ Undivided _____

Payments agreed to in surveyed miles _____ or actual trail miles _____

Mineral Owner:

Name _____ Mineral Lessee _____

Address _____ Address _____

City _____ State _____ City _____ State _____

Advance notice to surface owner of seismic testing activity required? Yes _____ No _____

Fence treatment, cut and repair _____ or drive around to gates _____

Price per shot point location \$ _____ consisting of _____ holes

Water is _____ is not _____ included in permit price

Water to be bought at \$ _____ per _____

Special Conditions: _____

Company contracted to plug holes:

Name _____ Address _____

City _____ State _____ Phone _____

Date to be plugged _____ Advance notice of plugging required? Yes _____ No _____

Vibrator testing price per mile, grassland \$ _____ cropland \$ _____

Special Conditions: _____

Permitman _____ Witness _____

DRILLING SITE POLICY
(Revised 1988)

The Montana Land & Mineral Owners Association, recognizing the economic value of gas and oil developments of the area, and in an effort to promote a better working relationship between the operators and the land and mineral owners of the area, offer the following guidelines as a suggested drilling policy to their membership:

1. We note the importance of good communications between all concerned from the start. We strongly recommend that the well site surveyor contact the surface owner or lease before any activity, and then jointly flag the access road to the drill site. In selecting an access route, all concerned should recognize that this road might well become a permanent road if the well is a producer. The operator then should notify all service companies to use this same access route. We recommend that operator and surface owner agree on water use and charges before drilling commences and that top soil be stockpiled for replacement after drilling.

2. On all wells, we suggest that the operator use a vacuum truck for cleaning pits, and restore the site immediately after drilling is completed. All trash, cement sacks, etc. are to be removed to surface owner or lessor's satisfaction. If a dry hole, access roads should be restored and provision made for reseeding if in grassland. Owners of a cropland roadway might well consider the need for clipping packed roadways. Should there be a dispute concerning excessive road damages that occurred while drilling or bringing a well into production, be it suggested that an independent dirt contractor be contacted to estimate damages. Landowner option shall be satisfactory restoration or cash payment of estimated cost.

3. As a guideline in determining average drilling site damages, your association recommends an average fee of \$500.00 for a grassland site; the variance to adjust for grassland quality, and amount of disruption of surface user's operations realized from the drilling operation. Agreement should also be reached as to reseeding if initial effort is not satisfactory. Normally, the operator has offered to reseed.

On cropland sites, we recommend a 50% increase over grassland, which would be an average fee of \$750.00 for hay, stubble or summerfallow sites. A preferred alternative to the above would be \$500.00 for the original site plus \$50/year paid biannually as long as the well remains in the field. This is due to increasing concern over the disruption of farming operations, often involving large machinery. The price range would reflect the quality and past productivity of the area, and whom would rework the site to its original texture and fertility, including clipping all sites and access roads and discing down lumps if surface owner does not object, due to blowing or other adverse conditions. Loss of production on sites seeded or about to be seeded to crop are normally based on past productivity times current market and vary from \$120.00 to \$160.00 per acre on approximately two acres per site in addition to the above.

In the event the drilling operator wishes to purchase water for use in drilling and the surface user is willing to sell, we recommend an average water use payment of \$150.00 a shallow well or \$100.00 for each 1000' of depth. Prices naturally would vary with availability of water, and surface user's priorities.

These price ranges are recommended with a maximum 1/4 mile access road, no adverse weather damage, fence damage, released livestock, or loss of time to the surface user in policing negligent operators.

Subsequent damages incurred by the surface owner by production operations are to be submitted as damage occurs. Your association recommends our claim for damage payment form for this purpose.

Recognizing the increasing disruption of normal farm and ranch operations where more than one well is producing per section, the association recommends that damage payments be increased for each well in excess of one to a section.

Consideration should be given to a release form signed at the completion of restoration.

4. In the event of production, the problem of permanent access road damage arises. We urge the closest cooperation in their location and development that they may cause the least inconvenience to the surface owner. We recommend \$25.00 per year per mile for a maximum disturbed width of 16 1/2'. For any additional width, we recommend \$25.00 per acre per year. All other types of land damages to be based on loss of production. On roads used jointly with the surface user, damages to be negotiated, based on use and the amount of road maintenance provided by the gas producer for such increased use.

5. The association will, upon written request by a member, publish flagrant violations of our drilling site policy in our newsletter and notify the operator involved.

Montana Salinity Control Association

P. O. Box 1411
Conrad, Montana 59425
Phone (406) 278-3071

RECEIVED

APR 05 1989

April 4, 1989

MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Ave.
Helena, MT. 59620-2301

Mr. Hart;

I am writing on behalf of Montana Salinity Control Association to comment on the programmatic EIS for Oil and Gas Drilling and Production in Montana. MSCA is an association of conservation districts formed to address salinization of soil and water resources in eastern Montana. Several individual districts have commented on the EIS and we would like to voice support for concerns raised by these local conservation groups. Most of our work is focused on salinity associated with agricultural land use, but our staff is active in investigative work relative to oilfield impacts in Toole and Richland counties. From these projects, we have become aware of the problems resulting from improper disposal of drilling wastes. Many areas in eastern Montana have ground water of marginal quality and soils prone to salinization from natural sources. Given that these resources are vulnerable, contamination from additional and concentrated sources should be minimized or eliminated.

The EIS does not adequately address the necessity for off-site disposal of drilling muds at many sites. A prerequisite for addressing this concern is the development of centralized disposal facilities, which is long overdue. While the possibility of off-site disposal of drilling fluids is mentioned in the EIS, the document should go further in specifying conditions under which off-site disposal should be required. Please consider that the following site characteristics suggest the need for positive waste containment or off-site disposal:

1. Ground water table within 20 feet of the soil surface (increased need for off-site disposal as this distance decreases).
2. Permeable soils. This is mentioned in the EIS, but I did not see a definition for the term. A broad definition, such as soils with less than 28 percent clay, would be needed since salt increases the permeability of clays.
3. Landscape position on alluvial flood plain or terrace, or other locations subject to accumulation of surface water.
4. Surrounding or adjacent land use irrigated agriculture (within 100 yards of site).
5. Presence of domestic or livestock well within 1/2 mile down gradient or 1/4 mile in other directions.

This comment suggests a number of measures that could be implemented to address issues regarding proper disposal of oil and gas drilling waste, and related groundwater protection. The draft PEIS indicated that these issues would be addressed in future rule-making efforts by the Board.

A permitting process is suggested which would require pit lining where any two of these conditions are present, and off-site disposal where any three are present. Off-site disposal should be required any time the water table is within 15 feet of the soil surface. Implementation of such regulations would require site specific soils and ground water information with the permit application. Observation/monitoring wells should be installed prior to permit approval if any condition in 2 through 5 (above) is present. A drill log of the monitoring well could be included with the permit application. Site inspections by qualified resource specialists should be required prior to permit issuance.

Where on-site disposal is permitted, several steps to maximize containment of brines are suggested. Technologies which solidify drilling fluids wastes are available and should become an operating standard within the drilling industry. Trenching of pits increases the acreage subject to salinization and should be eliminated. Reclamation procedures should always include lining the surface of the pit before burial, topsoiling, and grass seeding to prevent infiltration of water into the waste material. Lining materials should be resistant to breakdown and capable of supporting over burden stresses. Reclamation should be inspected to ensure that the lining remains intact during burial. After reclamation, reserve pit locations should be permanently and accurately marked in consideration of future excavation or land use changes at the site.

Your consideration of these comments is appreciated.

Sincerely,



Mark Tomer
Soil Scientist/Planner

MT\vp

Roosevelt County Soil Conservation Districts

CULBERTSON, MONTANA

March 13, 1989

STURBLE MULCH
TILLAGE

GRASSED
WATERWAYS

STOCK WATER
DEVELOPMENTS

STRIP
CROPPING

FEED
RESERVES

CONTOUR
CULTIVATION

STORAGE OF
IRRIGATION WATER

COMPLETE
FARM PLANS

CONSERVATION
ON WATERSHEDS

FLOOD
IRRIGATION

RECEIVED

MAR 14 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

TO: Kevin Hart, Project Manager
Dept. of Natural Resources & Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

SUBJECT: Comments on Environmental Impact Statement on Oil
and Gas Production in Montana.

The Roosevelt County Conservation District would like
to make the following comments on the Oil & Gas Production
EIS in Montana.

Item 1 - Access roads building and reclamation should be made
with an agreement between the landowner and the oil company
with care being taken to prevent wind and water erosion.

Item 2 - Pit liners must be used except in clay soil without
gravel or water veins in the soil.

Item 3 - SALT WATER LINES - When salt water is transported
to disposal well by pipeline, such pipelines will be mapped
and recorded with county clerk and recorder.

Item 4 - Air pollution - When gas from a well escapes into
the air the Department of Health has the right and obligation
to close down a well until the problem is corrected. H2S gas.

Item 5 - Disposal of drilling fluids. A permit system for a
disposal site for drilling fluids should be established.
Care should be taken to keep drilling fluids from getting
into water. Both ground and surface water.

These are concerns and comments of the Roosevelt County
Conservation District. We hope you will consider them when
you are making up the EIS on Oil and Gas Drilling & Production
in Montana.

Sincerely,



Marton Purvis, Chairman
Roosevelt County Conservation District

cc: Bill Petersen
Stan Lund

OUR BUSINESS: CONSERVATION OF SOIL, WATER AND HUMAN RESOURCES

This comment suggests how the Board could address a number of topics for
rule making. The Board will consider these issues when evaluating the rule
options presented in the draft PEIS.

SHERIDAN COUNTY CONSERVATION DISTRICT

RECEIVED

MAR 17 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION



Phone 765-1801 or 765-2252

Jill N. Jackson

Plentywood, Montana 59254
March 16, 1989

Kevin Hart, Project Manager
Dept. of Natural Resources & Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

Dear Mr. Hart:

We are writing to comment on the programmatic EIS for Oil and Gas Drilling Production in Montana. The Sheridan County Conservation District has been active in addressing the impacts of oil and gas development in Sheridan County and we feel that the EIS is long overdue. The Conservation Districts primary concern has been with the problems of salt water contamination of soils and groundwater which results from the improper disposal or mishandling of produced water and drilling muds.

In the EIS these issues are addressed, however we feel that the mitigation measures proposed may not be adequate to prevent further degradation. The proposed application for permit to drill (P. 199) does not ask for information on method of drilling mud disposal. We feel that sites with porous soils or high water tables are not suitable sites for salt-based drilling mud disposal and that off-site disposal should be required in those cases. We also feel that a determination of the suitability of the site for disposal cannot be determined without a site inspection or soils analysis by qualified persons knowledgeable about local site conditions. At the time the permit to drill is being considered the question of mud disposal on or off-site should be determined so that the landowner and the drilling company are aware ahead of time the potential costs involved. The fact that there are no licensed mud drilling disposal sites in Montana is also a problem that is not addressed in the EIS and if the problem of soil and water contamination from drilling mud disposal is going to be solved, off-site disposal will need to be available.

The problems and damage in Sheridan County resulting from oil and gas development has already occurred and any new requirements will do little to remedy the problem of salt leaching from evaporation pit sites, old tank batteries, mud disposal sites or leaking injection wells. We feel that new rules to control the amount of salt escaping into the soil and groundwater are definitely needed and we hope

This comment questions the adequacy of measures discussed in the draft PEIS to prevent soil and groundwater contamination from produced water and drilling waste. In particular, it criticizes the application to drill because it lacks information on the method of drilling waste disposal.

The draft PEIS points out how existing Board rules could be improved in this area. Further, the Board will address the necessity of options for offsite disposal and the need to streamline the process for permitting commercial mud disposal sites.

that the Board of Oil & Gas has the conviction necessary to stand up to industry pressure and implement rules which will protect the air, water and soil which is essential to the economy of our area.

Thank you for the opportunity to comment.

Sincerely,
Sheridan County Conservation District

Kent Nathe

Kent Nathe, Chairman

SHERIDAN COUNTY PLANNING BOARD

RECEIVED

MAR 24 1989

MONI. DEPT. of NATURAL
RESOURCES & CONSERVATION
Doug Smith, Planner
Box 191

Plentywood, MT 59254
Phone 765-2310, Ext. 315

February 23, 1989

Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana

Dear Kevin:

I am writing to comment on the Oil and Gas EIS. In terms of addressing the impacts resulting from a state permit to drill I think the EIS has adequately and comprehensively addressed those issues in a fair and impartial manner.

On the other hand I do not feel the EIS has adequately addressed the cumulative and long-term impacts of oil and gas development which have much greater impacts to the environment. By limiting the active scope of this study to impacts created with the issuance of a permit to drill you have largely written off the problems and on-going environmental damage caused by oil and gas production activities and waste by-product disposal.

Section 82-11-1111(2a)M.C.A. states that "the Board shall require measures to be taken to prevent contamination of or damage to surrounding land or underground strata caused by drilling operations and production, including but not limited to regulating the disposal or injection of water and disposal of oil field wastes;". I feel that the failure of the Board to comply with state law is largely due to the strong influence of the oil industry on the Board from the beginning and over a number of years. And I feel that the narrow scope of this EIS is largely due to "industry" representation on the advisory committee who stridently objected to expanding the scope of the study. And recognition by the State of Montana that cumulative impacts exist would mean that impact moneys collected by the state would actually have to be spent on oil impact areas of eastern Montana instead of the currently popular "pork barrel" projects for the more populous areas of the state.

In all fairness I must say that this EIS does address cumulative impacts to a limited degree and offers fairly generalized recommendations for mitigation. For example, I must take issue with a statement on page 138 (2nd paragraph) which suggests that oil companies could provide funds for parks and recreation. I'm not aware of any instance where an oil company voluntarily funded anything, even when business was booming. And nowhere

This comment indicates that the draft PEIS is not adequate since it fails to discuss in greater detail cumulative and long-term impacts of oil and gas development. It criticizes the draft PEIS for limiting the scope of topics relating to the Board's issuance of a permit to drill.

Senate Bill 184 defined the scope of review and established the objectives for the programmatic impact statement, including the provision for incorporating MEPA into the drill permit review process and administrative rules. This legislation does not require the programmatic impact statement to solve problems either not associated or indirectly associated with the issuance of a drill permit. It should be noted that the draft PEIS discussed the cumulative and long-term social and economic effects associated with oil and gas development. However, the conclusion reached by the draft PEIS is that these effects usually are not issues for the individual drill permit.

in the impact statement is there any suggestion that the "industry" has any responsibility for the welfare of its employees such as assuring adequate housing, health care, public services or recreational facilities. All those costs and burdens are put on the local communities, as are the costs of groundwater contamination, soil degradation, and damage to roads and bridges. Even though the oil boom is past, many of the impacts to small towns remain, and I think there is a definite need for an energy impact grant and loan program, particularly for impacted communities that do not share in an oil rich tax base.

And this study fails to mention or assess the effectiveness of existing impact funding programs, such as the "increase in production" impact payments. Or the federal mineral royalty payments which are intended to assist impacted communities but are spent on state highway or school funding, or the RIT tax intended to clean up left-over mining damage but being spent on frivolous unrelated pork-barrel programs.

One more suggestion, that the revised drill permit application (p. 199) contain a reclamation plan for restoring the drill site and access road, if no longer needed, and that said reclamation plan be reviewed and approved by the surface landowner prior to issuing a permit to drill. That is standard procedure for similar mining permit applications issued by the Department of State Lands and I don't see why it should be excluded for oil or gas drilling operations which are potentially more damaging than many small mining permits issued by DSL for such things as gravel pits.

This impact statement has put its foot in the door in terms of addressing oil impacts but tying it to a permit to drill because it is the only significant action taken by the Board of Oil and Gas only furthers the Board's negligence and the interests of the industry in avoiding the environmental costs which are dumped on landowners and local communities.

Thank you for the opportunity to submit comments.

Sincerely,

Doug Smith

Doug Smith,
Sheridan County Planner

For concerns directly related to the issuance of a drilling permit, the draft PEIS discusses where current rules could be strengthened to address impacts identified through the draft PEIS. The Board will consider these various rule revision options as it develops a workable process.

Interested Individual Comments

RECEIVED

MAR 24 1989

VIRGIL R. CHAMBERLAIN — CONSULTING GEOLOGIST & ENGINEER
914 13 AVENUE SOUTH GREAT FALLS MONTANA 59405
P.O. BOX 2341 GREAT FALLS, MONTANA 59405

Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, MT 59620-6812

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

Re: Programmatic Environmental
Impact Statement on
Oil & Gas Drilling & Prod.
in Montana

Dear Mr. Hart:

I did not receive any of the publications relative to the Programmatic Environmental Impact Statement until being notified by Bill Croft that you all were holding a public meeting at the Heritage Inn, in Great Falls, March 8th. As I picked up your publication at that meeting it would not have been fair for me to condemn or approve any of the data until I had had the chance to review this publication in its entirety.

First for my background. I am the third generation in the oil business. My grandfathers were both in the early day oil industry in Pennsylvania and northwestern New York. My mother and father were both born in Pennsylvania but moved to Finlay, Ohio when oil was discovered there. When oil went down to a few cents a barrel my father accepted a job as an engineer on the Panama canal. From there he again entered the contract drilling in Alberta and Northern Montana beginning in 1916, and remaining active in the oil business until his death in 1961. So I believe it is safe to say I grew up with the oil industry of Montana.

I was raised and attended grade and High School in Great Falls. While still in High School I obtained a Stationary Engineers license (1934) so I could operate the boilers on steam engines used to power the drawworks on rigs at that time. In fact most of my money for college came from working on rigs during the summer months. I attended Montana State University, Montana Tech, and Stanford University and hold degrees in both Geology and Engineering.

Until the early 1950's the Oil and Gas Conservation Board was located in Great Falls and consisted of a two man office and one field inspector. With the discovery of oil in the Williston Basin the need for more supervision and additional personnel was recognized. In cooperation with the Oil and Gas Board, Department of State Lands, and the Oil Industry, the present Oil and Gas Conservation Commission of the State of Montana was established, the number of Commissioners and Administrators and their duties set forth, and the General Rules and Regulations and Rules of Practice and Procedure Relating to Oil and Gas published.

PHONE (406) 761-7577 MOBILE 761-6529

The Board has attempted to obtain a wide range of views during the 105-day comment period held on the draft PEIS. These comments will be considered by the Board as it develops the process required to meet the requirements of Senate Bill 184. This process will promote the efficient and expedient approval of environmentally sound drilling projects.

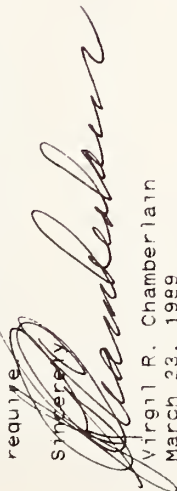
Since that time the State and the Oil and Gas industry have worked hand in hand to see that this valuable resource is developed under controlled rules and regulations. The Board and Administrators consist of individuals from the various segments of Montana:--- farmers, ranchers, businessmen, professional people, royalty and mineral owners, and those more directly involved with the oil/gas business. The State has had and still has a very competent group of professionals to serve as their Administrators. Any problem dealing with spacing, drilling, location work, clean up, oil or salt water spills, or in short anything that can occur in the drilling, completion, or production of an oil or gas well can be ably handled by this Board, and has been for nearly 40 years. Why then do we need repetition to do what already exists. No one wants to destroy the environment, and in the Oil and Gas business it is already well managed.

The greatest destroyer of the environment is the plow. Now don't tell me that the EPA is going to insist that we go away with the tilling of the soil. Yet this completely destroys the native grasses, obliterates the habitat for numerous rodents. Just so a farmer or rancher can gamble his money that he might get a crop and feed a bunch of people he doesn't know or is ever likely to meet. This is considerably more damage than a well location, even for a very deep well would cause. Is the EPA going to impact this damage? Yes, I know that this sounds silly, and it is. It would be over-regulation. But so is the proposals set forth in this Programmatic Environmental Impact Statement--. We are already well regulated by a hardworking Board composed of the various segments of the Montana populous.

At the present time there is a surplus of oil in the world; just a few years after the pseudo-experts advised we would be out of oil by the 1990's. Price governs the economics of the oil business, and if the price is right we geologist can recommend areas such as the North Sea, Alaska's north slope, deep wells off our coasts, etc. While nothing can be done without harming any environment to a limited extent, mineral exploration of any kind can be pursued under present guidelines already in place. We don't need more. Remember we do damage the environment if we walk on the grass.

I appreciate the time the various authors have put into this publication, but I am afraid a great deal of it is plain unadulterated "bull". The first 3 chapters, particularly Chapter 2 are good; from chapter 3 on this publication is a disaster. If you want to kill drilling activity, oil exploration, and production in this State follow the suggestions in this book. Further, you should be prepared to build, purchase or rent a large building in Billings, Shelby, and Helena in order to house the personnel necessary to handle the paper work these regulations would require.

Sincerely,



Virgil R. Chamberlain
March 23, 1989

RECEIVED

MAR 17 1989

March 15, 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

Kevin Hart, Project Manager
Department of Natural Resources
and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

RE: Programmatic Environmental Impact Statement
Oil & Gas Drilling and Production in Montana

Dear Mr. Hart:

I am an environmentalist who moved to Montana from Michigan over 15 years ago. Montana's clean and uncrowded spaces are one of the primary reasons I came to this state and why I have so enjoyed my lifestyle here. I oppose any action that presents a clear threat to Montana's physical environment.

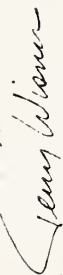
In the great majority of cases, the drilling of a well in search of oil or gas does not constitute a real threat to our environment. The majority of wells drilled today are within or near boundaries of long-established fields. Thousands of wells such as these have been drilled over the years with little environmental impact. The effects that do result from drilling are largely transitory; you can drive through the middle of some of the biggest natural gas fields in our state today and barely notice their existence.

Experts tell us that while there is relatively little oil to be discovered onshore in the continental U.S., there is good potential for major discoveries of natural gas. The burning of foreign oil has very negative economic and environmental impacts upon our state and nation; increased production of natural gas in Montana has positive economic and environmental consequences for us all. Unfortunately, Montana already suffers from the perception of a poor business climate relative to oil and gas exploration. Adding unnecessary costs and delays to the permitting process will only worsen Montana's position.

I believe that the Board of Oil and Gas Conservation has performed admirably in its consideration of environmental issues when evaluating drilling applications. I further believe that the drilling of wells for oil or gas should be exempted as major actions under the Montana Environmental Policy Act. At the very least, we should exempt drilling in established areas and streamline the process for proposed drilling in areas which may be more environmentally sensitive.

Please consider the impact of your actions on my environment.

Sincerely,



Terry Wisner
Certified Professional Landman

This comment again presents a common theme regarding the development of a review process that is efficient and expedient and will not cause unnecessary delay or regulations. The Board agrees and will develop a process to meet Senate Bill 184 considering these concerns.

However, this comment indicates a misunderstanding regarding MEPA review responsibilities. The Legislature has determined that the Board must comply with MEPA. The process options suggested in the draft PEIS for Board consideration would allow compliance to be achieved for most wells by completion of a checklist review. This process is the minimum level of review that can be used to achieve compliance with MEPA.

Lewis F. Penwell, CPL
INDEPENDENT PETROLEUM LANDMAN

February 22, 1989

State of Montana
Board of Oil and Gas Conservation
Mr. James C. Nelson, Chairman

Re: Draft EIS and
Programmatic Statement

Gentlemen

I am a native of Montana, born in Helena and raised in Billings. I have accumulated over 30 years in the oil business, including 14 years in the Conoco Land Department and 20 years as an independent landman. Most of my work has consisted of land services to exploration companies, both large and small, located both in Montana and out of state. This work has provided me with a pretty good perspective of what it takes to conduct a prospering exploration program here. In today's business environment a successful exploration effort requires a lot of money, more than a little luck, and a very tenacious attitude over a period of many years.

Not many organizations have been able to put all these factors together; and as a result our exploration activity and our production have shown an alarming decline in recent years. In 1981 there were an average of 80 rigs operating in Montana. By the spring of 1985 the number had dropped to 25, and last week the Oil and Gas Journal reported 3 rigs running. Is it possible this number will go to two or one or even none yet this year?

Equally alarming is the drop in oil and gas revenue flowing into our state government and into the bank accounts of thousands of Montana mineral and royalty owners. In 1968, shortly after development of the Bell Creek Field, we were producing over 130,000 barrels of oil per day. In 1980 that figure had dropped to just over 80,000 barrels, and at the end of 1988 we were producing about 66,000 barrels per day.

Our total tax on production is higher than any other Rocky Mountain state. Our personal property tax is a real burden on contractors, and believe me, this tax has to be passed on to operators if the contractor is to stay in business.

Yet, gentlemen, here we are today talking about further restrictions on Montana operators, or potential operators. You must ask the question: Why does Montana have to make it so difficult to operate here? Is our environment more precious than Wyoming's? Is our air, our water, our land more fragile than Colorado's? Those states have no such obstacles as we are here discussing.

Senate Bill 184 and the resulting programmatic statement seem to dictate that some sort of environmental review is going to be required for a permit for each and every well. I sincerely hope that someone will devise an alternative solution. In conversations with my clients I have received a very negative response to any kind of delay in the permitting process.

Many of the comments in this letter regarding tax policies and the relationship of the price of oil to drilling and production activities are issues that cannot be resolved through this PEIS.

The letter also criticizes the process suggested in the draft PEIS for the review and approval of drilling and production in Montana as being more burdensome than other states. Similarly, objection is made to measures discussed in the draft as being too restrictive. Based on a review of surrounding states' procedures and rules and the analysis contained in the draft PEIS, these criticisms appear to be founded on objections to change and a misunderstanding of the environmental review process envisioned by Senate Bill 184. The Board is committed to developing a drill permit review process that is efficient, timely, and provides reasoned environmental protection where needed.



Lewis F. Penwell, CPL
INDEPENDENT PETROLEUM LANDMAN

Page 2
Letter to Board of Oil and Gas Conservation

The dominant comment is that once we drill our present prospects we will be going elsewhere to explore. We just don't have to put up with more red tape.

If there is no escape from this added burden, gentlemen, then I despair of ever seeing a recovery in this state.

I implore you to keep the implementation of this mandate as simple as possible. Do not create a further burden. We need to be making it easier, not harder, to explore in Montana.

Yours very truly


Lew Penwell

RECEIVED

MAR 29 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

March 24, 1989

Kevin Hart, Project Manager
Department of Natural Resources and Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

Dear Sir:

I am writing to approve of the "Draft EIS" of January 1989 on Oil and Gas Drilling and Production in Montana. This appears to be a comprehensive and usable guideline for the Board of Oil and Gas Conservation to use when issuing permits for drilling. However I very strongly recommend that the additions and suggestions of the Northeast Montana Land and Mineral Owners Assn., Inc. as made in their March 1989 Newsletter, of which I understand you have a copy, be added to and included in the appropriate text of this document.

The Board acknowledges receipt of the following letters submitted during the comment period.

Sincerely,


Ray Franz

RECEIVED

MAR 31 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

501 7th St. S.W.
Great Falls, Mont 59404
March 29 1989

Board of Oil & Gas Conservation
1520 East 6th
Helena, Montana 59620

Gentlemen;

I was unable to attend the hearing on March 8 concerning the Programmatic Environmental Impact Statement on Oil and Gas drilling Production in Montana. However after reading portions of the Statements I have come to the conclusion that a lot more study is necessary.

The Rocky Mountain Front is a Fragile area had home to Grizzlies, Goats, Elk, and many other animals plus a great nesting place for birds. These things are hard to replace. There are many statements about the effects of Oil and Gas development that lead me to believe our animals and birds would be in grave danger.

Therefore I recommend further study is necessary.

Sincerely
Goni Lauckner.



RECEIVED

MAR 29 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

1305 2nd Ave. North
Great Falls, MT 59401
March 27, 1989

Board of Oil & Gas Conservation
1520 - East 6th
Helena, MT 59620

Gentlemen:

I attended a public hearing on March 8 in Great Falls concerning the Programmatic Environmental Impact Statement on Oil & Gas Drilling Production in Montana.

There was much testimony against this EIS from oil people; but I gathered that these people had engaged in drilling activities out on the prairie.

I am concerned about oil and gas development along the Rocky Mountain Front--probably the prime wildlife area in the lower 48. There are numerous documentations in your EIS and in wildlife journals, of the adverse effects of oil and gas development on wildlife--not only grizzlies, mountain goats, elk, and other animals, but also on birds.

Therefore I believe a programmatic EIS on oil and gas drilling production is necessary in order to protect the Rocky Mountain Front, a national treasure.

Sincerely yours,

Carley Mc Caulay

(Miss) Carley McCaulay

RECEIVED

MAR 27 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

March 24, 1989

Kevin Hart, Project Manager
Dept of Natural Resources & Conservation
1520 East Sixth Avenue
Helena, Montana 59620-2301

Dear Mr Hart:

My sister Ann Hansen and I
own the minerals on the land on
which the 1-9 Julie, T.S. R.S., Cobland
County is located.

I understand this well known
prominently in the Environmental
Impact Statement Draft dated

January 1989.

Also, the newsletter from the
March 13 meeting of the Montana
Land & Mineral Owners Association
carried an extra page, entitled
"Unnerving H.S. Dilemma."

Since I had no reason to
document these happenings I
cannot allude to a certain date
that this or that happened, as
Ann and Peter Svensson have
done.

When this well was first brought
on production in December 1986 and
was being flared, the pollution
was terrible. We reported the well's
excessive H₂S gas at that time.
Donald C. Stevenson shut the well
down, ran the gas into the gas
pipeline which runs across our
property. At a later date, it was
shut down to install vapor
control equipment. And, it has
been shut down for malfunction
of that equipment, as should be done.

During the winter months I spend
no time on the premises. During
the summer months, I am on the
property a good deal of the time.

A few times I have smelled
the gas, but didn't seem to be
bothered by it while working on the
premises and, so much of the
time I have smelled nothing at all.

I cannot understand the
reluctance of the oil company
and the existence of the oil well
itself. It is as though, since they
do not have the production from
this oil well themselves, they don't
want someone else to have it.

In July, 1907 Frontier Exploration did some business for Skenson oil. But Skenson would not allow them to extend the line across his property.

With all this frustration you begin to wonder if the Finnicum are trying to maneuver a large sum of money for damages from the oil company.

Or, maybe they haven't been too honest with the use of the volunteer Detectors, such as: falsifying readings at their Samstead when the levels are not high enough to show a good result, or, taking the volunteer Detectors directly to the oil well head and tanks for a discolored far, quick reading.

As I said, this frustration sets you to wondering about all the possibilities.

Now, I understand Mr. Evensen, who lives south of Andes, complained about the oil tankers with their odor coming by his house. Perhaps he should stay off the highways. There are not many oil tankers you

meet on the highway that do not carry an oil ad with them.

The report on newsletter, from M. W. A. says Fisher's minimum need to, back in 1945, sleep outside and now, 44 years later cannot do so. He must know something about the Fountain of Youth that I have missed — I'm 73 years old and I guess I missed something along the way.

Sincerely yours,

Mary Hughes Fisher
418-3rd st. N.E.
Sidney, Montana 59270
(406) 482-2474

P.O. Box 242, Vaughn, MT 59427 Feb. 6, 1989

Phone 453-7412

RECEIVED

FEB 09 1989

Mr. Kevin Hart, Project Mgr. EIS/NEPA/SE#184
Department of Natural Resources & Conservation
1520 East Sixth Ave., Helena, MT 59620-2301

MT. DEPT. of NATURAL
RESOURCES & CONSERVATION

Hello Kevin:

I am in receipt of the Draft EIS Handbook and very much appreciate receiving that. I had no idea that this would encompass such a wealth of information. My first thought was, "why all this information"? Then it dawned on me that in so doing, all laymen and/or "critics" would have NO excuse whatsoever not to be "well informed" of all details surrounding oil and gas drilling activity and related conditions. Every Montanan who has any interest and/or contact with oil and gas drilling activity should have one of these handbooks for their own enlightenment and reference. I seriously believe that an appreciable number of these can be sold to Montanans if the price can be kept under \$50.00 by perhaps running an ad in the Montana Oil Journal. I personally believe that I could sell a number of these to people that I know. Will any of these copies become available for sale??

Since this report is so comprehensive I would offer an additional suggestion which may not be directly influential upon the EIS but certainly follows in regard to other material within this report, primarily the Social/Economic Effects. That being the clarification and illustration of individual Land/Mineral Owners specific "Rights" and differentiating between "Mineral Ownership" and/or "Royalty" ownership. I have compiled considerable material in this regard for my own protection and knowledge, fully supported with "documented" evidence of case histories and legal references. I would be happy to contribute all of this material to your cause if interested and you can take all the credit for it yourself as my only interest is to "inform" the average laymen and/or prevent further abuse to land/mineral owners by unscrupulous lawyers, land/lease operators and/or others who might prey upon the ignorance of innocent land/mineral owners.

The attached copy, compiled by me to get the Exxon "mittenheads" straightened out after they tried to intimidate me by sending a junior executive to meet with me in Great Falls out of their Denver offices. After contacting their New York CEO and routing through Huston I eventually got a letter from Carl Richards (Exxon Man) who met with me here in Great Falls, acknowledging that I was absolutely right in my adamant stand that my mineral reservation amounted to 1% of ALL production rather than 1% of the total 100% of minerals. In such a case 99% would have to be owned by "someone". WHO would that "someone" be?? There were NO other "reservations" amounting to that so they (Exxon) "assumed" that the "surface owner" then owned the other remaining amount. The truth was that the "surface owner" owned the exact same amount as the rest of us (1%) He is a brother. You cannot diminish "ALL the Oil and Gas Produced" from 100%. Therefore 1% of "ALL the oil and gas produced" is ONE barrel out of every one hundred barrels produced.

Far too many "reservations" in mineral deeds and/or land deeds are unclear as to exactly what the reservation calls for and are many times ambiguous. One case history where the connotation "Royalties" were used with accompanying rights of ingress/egress were then interpreted by the court as being a "mineral" reservation rather than royalty simply because in "royalty" reservations, NO rights of ingress/egress are needed or allowed and therefore the "Royalty" owner has NO voice in any activity. On the other hand "Mineral Ownership" is "REAL PROPERTY OWNERSHIP" and has the exact same control by the owner as any and all Real Property. It is quite simple to use the "proper language" when affecting "mineral" or "Royalty" ownership reservations etc, providing the architect is knowledgeable in those matters.

Sincerely,

St. Paul Henan

G. Paul Genar

(Please note address change above)

Certainly a lot of concentrated effort has gone into the compiling of this EIS Handbook and I commend ALL of you for having accomplished a very informative and worthwhile reference material which will last the owners a lifetime.

When you "language" at Exxon/Denver can show me "how" I can get 1% of ALL the Oil & Gas produced, then "show me" HOW the world is round and FLAT as a pancake!! You simply CANNOT have it both ways, A & B as per your recent efforts.

The following 100 rectangles are symbols of 100 bbls of OIL

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Under schedule (B) it would take 600 bbls per day for producer to net the 1% holder of mine. 1 bbl as apposed to only 100 bbls per day for schedule (A) to realize the SAME Amount.

NEP circle represents 1 bbl and/or 1% of ALL the Oil produced, or a 100 bbl per day well. ALL the Oil & Gas produced, is ALWAYS 100% of production!! There is NO other interpretation!! of THAT!!

This (1) ONE bbl represents 1% of the above TOTAL 100% Therefore that is 1% (one percent) of ALL the Oil produced off a 100 bbl per day well (Mineral Owner Share) in My Case

7/8ths of (1) ONE bbl. -- "Producer" (under normal Leases) 1/8th of (1) ONE bbl "Land/Mineral Owner" (above)

If one has 1% of ALL the Mineral, barrel - (B) represents the "split" of 7/8ths (producer) and the 1/8th Land/Mineral Owner

If one has 1% of ALL the Oil & Gas Produced, then barrel (A) is the proper representation. (1) ONE bbl out of every 100 bbls.

There is a VAST difference between owning 1% of ALL the Minerals as apposed to 1% of ALL THE OIL & GAS Produced!!

The "language" used in the reservation is the "KFI" factor.

O. Paul Gomar 5/22/86

I also have supporting material from hoodedgable and recognized individuals out of Los Angeles and Dallas

March 18, 1984 Ft. Falls Tribune

All people own this store

Just for fun, suppose you own a grocery store. You walk in one day and ask the manager how sales are going. "None of your business," he replies. Absentee owners often discover they've been edged out — that the employees are running the business to suit themselves. That can happen to us and our government too. We fail to exercise our constitutional right to know what our employees are doing.

Your manager clearly has lost sight of an important fact: He is your employee, hired by you to run the business according to your wishes. He works for you.

Most of us don't own a grocery store. But we do own the biggest business of them all: The government. All public employees are our employees. They work for us. The good ones, the majority, never forget it.

But a few are as forgetful as our grocery store manager. We hear stories every day about some government employee who has refused to let his employers observe him at work, or examine his records to see how he has spent our money.

Often it's our own fault, because we have not exercised the right he helped assure for us. How about dropping in at the store one of these days?

This right is so important that Montanans built it into the Constitution and the statutes. In the U.S. Constitution, the right to know is embodied in the First Amendment of the Bill of Rights.

Today is the birthday of James Madison, chief author of the Bill of Rights. The Society of Professional Journalists and other news organizations designated Madison's birthday as Freedom of Information Day. It's time to remember our rights as Americans to receive information about our governments — to preserve our democracy.

What better gift would we give Madison than to exercise the right he helped assure for us. How about dropping in at the store one of these days?

RECEIVED

MAR 28 1989

Mr. Kevin Hart, Project Mng'r.
Dept. Nat'l Resources & Consv.
1520 East Sixth Ave.
Helena, MT 59620-2301

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

Dear Mr. Hart:

I have read in the Montana Oil Journal the "Letter to The Editors" by the exalted Kneelon Teague, geologist of Shelby, Montana. I certainly acknowledge that he has had a whole hell-of-a-lot more experience in the oil patch than I have had. However I am also aware that his primary interest in matters of oil and gas production is to keep the "layman" as ill-informed as possible in order to more expeditiously gain advantages for his clients who are of course oil and gas producers among others perhaps. At a Board Meeting in Shelby several years ago upon whos' agenda was a matter pertaining to the 1-5 Genar Oil Well where Mr. Teague was representing the producer of that well and other nearby gas wells (Natural Gas Processing Co.) off Wierland, Wyoming and at which meeting I posed the question of direct ambiguity in data presented to the Montana Oil and Gas Board regarding production off the above oil well and after my having made the statement you could have heard a pin drop in the whole room and NOBODY responded to the situation as I had posed it, least of all Geologist Kneelon Teague!! I can no longer remember the exact context of my statement but I most assuredly can refresh my memory on that by reviewing some of the reports in my files.

I have also had some experiences as here-to-fore revealed to you at an earlier date in overseas oil exploration (Saudi Arabia) and also in Alaska during the pipeline construction phase there that perhaps even the exalted Mr. Teague has NOT had!! And as Mr. Teague himself as lauded the quality of the first four chapters in the Draft EIS which I concurred with as previously stated in my recent letter to your office. Therefore Mr. Teague and I are not exactly at odds with each other on matters of the Draft EIS. I too like very much to keep things as simple as possible and endorse the premise, "if it isn't broke don't fix it!!" However in our ever more complex society and environs we simply cannot forever keep things as simplified as they once were when certain environmental conditions were both/ totally ignored and were at the specific time perhaps not nearly as significant as at present or were then not recognized as such. Therefore ~~Mr.~~ Teague seems to be indulging to a great degree in "wishfull thinking".

I was not present at the March 8th, 1989 meeting at the Heritage Inn at Great Falls as I had other commitments that particular day. However had I been there I most likely would not have challenged the exalted Mr. Teague as I don't consider my "expertise" of any great magnitude on the matter but perhaps just enough to have some "impact" on reasoning regarding these issues. And I can much better express myself in writing than at such a meeting as my thinking processes are much more clearer at the typewriter than facing a sea of faces at a public meeting.

I have however a very serious matter that I want to present to you!! I want to know why-in-hell your office hasn't extended to me the common courtesy of having responded to my letter shortly after I received the DRAFT EIS Handbook? Don't you people honor your own commitments?? The accompanying letter with that EIS Handbook flatly states that "Persons requesting additional information or making written comments should contact Mr. Kevin Hart, Project Manager". I made specific request for information regarding certain details which so far has been totally ignored by your office. Also I note that specific "landowners" have been instrumental in compiling this Draft EIS. Have they been contacted regarding their response to my suggestion of added information on Landowners Rights and specific information differentiating between "Mineral Ownership" and/or "Royalties" and related "Leasing" conditions etc. ???

Since I was chosen as one of the original contacts for participation in this specific project for whatever reasons by the then Governor Schweidens' office and of which you Mr. Hart were also an official representative in his behalf I do therefore not appreciate being ignored at this late date even though the political administration has changed hands. Perhaps you have fallen for Mr. Stevens' style of basically ignoring the people of Montana and anything that they may wish to address. The enclosed clipping out of the Great Falls Tribune, copies of which have been sent to both Mr. Stevens and Mr. Kolstad might well be hung on your office wall as a constant reminder of "just where" your basic responsibilities lie!!

I have had letter contact with both Mr. Stevens and Mr. Kolstad about matters not related to the subject matter of this letter and so far Mr. Kolstad is the only one of the two who has proven to me that he has his head screwed on right!!

There is a very strong possibility that I will be directly involved in some future oil and/or gas production on personally owned Mineral Acres where Exxon has drilled a whole series of dry holes surrounding and adjacent to this property and where I have advised them of the fallacy of that albeit I was totally ignored by them in my forewarnings. Never-the-less I have graphically informed them that each time they have drilled still another dry hole (SIX) that they have then added six-fold to my log of valid information about the right drilling site.

Big oil companies "pollution" is NOT all physical! A lot of it is psychological, just as Exxon had attempted to perpetrate on me, but failed miserably!! Therefore my suggestion to you about additional information regarding the rights of Land/Mineral Owners and related conditions should be seriously considered as a necessary part of the EIS as any other physical conditions as whenever a land/mineral owner is "fleece" by some unscrupulous ass, the State of Montana is the loser as well as the individual owner.

I might add further that my specific information regarding the viable possibility for successful production in my area is based on scientific information pioneered by some sharp young computer enthusiasts right here in Great Falls, Montana utilizing the Landsat photo imagery and which technique is finally being recognized by the American Petroleum Institute with proven production in Texas and elsewhere. The mechanics of this imagery is so simple that any farmer who has access to the basics can readily "understand" the process and also the "quality" of that process by reasons of his own observations on and about his farm over the years.

We live in an ever-changing world and adjustments have to be made. Just as more and more Land/Mineral owners become ever more "knowledgeable" in the techniques of oil and gas production there will be changes in "leasing" agreements and related landowners "shares" just as has happened in the leasing of farmland over the years since the "Homestead" days up and including the present.

Perhaps the Governor and Lieutenant Governor have received copies of this Draft EIS Handbook. Certainly they should have!! I think a lot of "heavy-thinking" has to be exercised before any permanent decisions are rendered not all of which will follow Mr. Teagues reasoning!!

I will expect to get a reply from you soon Mr. Hart and to help "expedite" that I am taking the liberty to forward copies of letters to you previously to Lieutenant Governor Allen Kolstad!! Governor Stevens/ wouldn't know what-the-hell I am talking about under any circumstances just as he has proven in recent correspondence!! Iore would he give a tinkers' dam unless of course profits were directly bound for his pocket!! And/or state benefits that would make himself look REAL GOOD!!

Sincerely,

Exc: Allen Kolstad / Lieut. Govr.

Kevin Hart, Project Manager
Dept. of Natural Resources & Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

RECEIVED

3-30-89

APR 01 1989

MT, DEPT. of NATURAL
RESOURCES & CONSERVATION

Re: Draft Programmatic EIS

Dear Mr. Hart:

I feel that some aspects of the draft EIS could be applied in a positive manner to very sensitive areas such as the Rocky Mountain Front and most of Western Montana.

But we should not overdo it and place too much of a burden on oil and gas operators in old established fields where adverse impacts on the environment are not likely to result. For example, in the Kevin-Sunburst Field this could put a damper on future development and drive existing operators out of business in a situation that is currently not very profitable. This could have significant effects on Montana's economy. We must be wise and not initiate anything that could have a detrimental effect on the state.

I would favor changes that would put some sort of guidelines into the design and future construction of produced water pits to properly contain salt or brackish water. In my field inspections I have seen many pits that have been built too small for production volumes and pits that have been poorly designed and constructed, thus allowing the escape of produced fluids. In situations where produced water pits are located close to high quality surface water or streams, a plastic pit liner might be the best solution to any future problems that might develop.

A surface reclamation plan within a specified time limit could reduce the length of time needed to properly restore a site and also aid in the inspection process. Currently, prior to the inspection of a site the inspector has no idea if the location has been reseeded and if so when it was, nor does he know if the casing has been cut below ground level and if so how deep it was cut. The inspector must judge whether the site was seeded and decide if he wants to wait another spring for growth to develop or request a reseed to what may have never been seeded in the first place. This problem and others could be eliminated and the restoration would be more timely if a reclamation plan was followed and the inspector notified of the date the reclamation plan was initially completed.

These are some of my feelings and comments regarding the draft EIS.

Sincerely,

Gary Klotz

Gary Klotz
Northern District Field Inspector

Federal Agency Comments



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
MONTANA STATE OFFICE
222 NORTH 32ND STREET
P.O. BOX 30800
BILLINGS, MONTANA 59107-0800

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

3160 (922.K)

March 28, 1989

Kevin Hart
Project Manager
Department of Natural Resources and Conservation
2520 East Sixth Avenue
Helena, Montana 59620-2301

Dear Mr. Hart:

We have reviewed the draft "Programmatic Environmental Impact Statement on Oil and Gas Drilling and Production in Montana" and find it to be a comprehensive and well written document. The authors are to be congratulated for having produced, on schedule, a very comprehensive statement on such a wide-ranging and complex subject.

Following are our general and specific comments to the draft:

General Comments

We continue to strongly urge that the Montana Board of Oil and Gas Conservation (MBOGC) pursue a memorandum of understanding (MOU) with the Bureau of Land Management (BLM) that would allow the MBOGC to defer to the Forest Service (FS) and BLM National Environmental Policy Act (NEPA) documentation, and permit requirements for surface use, on BLM and FS mineral estate. We perceive our NEPA analysis, documentation, and mitigations to have adequately addressed any Montana Environmental Policy Act review that the MBOGC would conduct, and that further review is redundant in most cases. In cases involving nonroutine NEPA documents (intensive EAs or EISs), we would secure a formal cooperator status for the MBOGC.

We urge you to concisely recommend and summarize (perhaps in a matrix) all the impacts, or range of impacts, associated with oil and gas operations, without the regulatory imposition of mitigation measures. Another matrix would then show the types of regulatory mitigations that could be applied, and the relative protection afforded the environment versus the cost to the oil and gas industry.

The Board concurs. (Refer to responses to Cenex, Chevron, and Exxon letters.)

BLM suggests that a summary matrix of impacts and mitigation be applied to oil and gas operations in Montana and implies this would provide a quick reference for determining cost-effective mitigation. The analysis in the draft PEIS indicates use of such an approach would be limited by differences in drilling operations and variable site conditions, including the presence or absence of sensitive features at individual locations. Further, sensitive siting decisions about the inherent impact tradeoffs, mitigation costs, and environmental protection benefits are best made within the context of individual permit questions.

It may be desirable to clarify the extent of the authority that the MBOGC has under present statutes to impose mitigation measures on private mineral and surface estate. Present MBOGC authority appears to relate to the conservation of resources (i.e., hydrocarbons) and not the regulation of surface impacts. We suggest a detailed legal analysis of this aspect be included as an appendix to the document.

Specific Comments

Page	Par.	Comments/EIS
180	3	We disagree with this statement and perceive that this EIS has an obligation, at a minimum, to legally research the authority for the application of regulatory mitigations and provide any suggested state legislation needed.
211	3	As stated in our general comments, the MBOGC should amend our existing MOU to defer to a FS/BLM NEPA analysis and mitigation application.

Comments/Technical Appendix

101	2	We suggest changing this heading to: "Bureau of Land Management Montana State Office Air Quality Policies on Flaring/Venting."
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Questions on these comments should be referred to Paul Kruger at 255-2860.

Sincerely,



Thomas P. Lonnie
Acting State Director

The Board disagrees that this PEIS is the place to discuss or analyze questions about its discretion or limits of authority beyond that discussed now in the draft or final PEIS. The reader is referred to responses to letters from Cenex and Chevron.



United States Department of the Interior

1559 APR 27 1989
BUREAU OF LAND MANAGEMENT
DICKINSON DISTRICT OFFICE
2933 THIRD AVENUE WEST
DICKINSON, MONTANA 58601

TO: STATE OF MONTANA
FROM: BUREAU OF LAND MANAGEMENT
SUBJECT: COMMENTS ON THE "PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON OIL AND GAS DRILLING AND PRODUCTION IN MONTANA"

April 26, 1989

Memorandum

To: State Director (922.K)
From: District Manager, Dickinson
Subject: Comments on the "Programmatic Environmental Impact Statement on Oil and Gas Drilling and Production in Montana"

The Montana Department of Natural Resources and Conservation (MDNRC) is extending the comment period for the referenced EIS to May 15, 1989. It had originally expired on March 31, 1989. We have a comment which we would like to be made by the MSO to the MDNRC.

As you know, this office has a cooperative agreement with the Montana Air Quality Bureau (MAQB), whereby they will provide this office with an inventory of gas use and H₂S content in three counties in eastern Montana. As a result of an expensive inventory effort, we find that the MAQB data on H₂S content of gas is very skimpy and had to be supplemented by data from non-MAQB sources. While the lack of extensive data does not eliminate the usefulness of the Montana portion of the Williston Basin Regional Air Quality Study, it opens it more to questioning on the basis of data reliability than would otherwise be the case.

If the Board of Oil and Gas Conservation Division were to require gas analyses (which the MAQB could access) on all existing and new wells in the state in the future, the ability to develop the impacts of H₂S originating from oil and gas wells in studies, such as ours, would be greatly enhanced. If the Board of Oil and Gas were to incorporate these gas analyses in their records, it would facilitate modeling efforts in terms of time savings and data adequacy, and lower their costs by obviating the need for separate inventories. Providing gas analyses should not be a burden of any consequence on oil companies since they need to have this gas analyzed anyway.

William F. Krech
William F. Krech

- 1 Attachment
- 1-Copy of Montana EIS Deadline Extension

It has not been determined whether gas analysis will be required for the Board to fulfill its MEPA obligations. If the Board were to require gas analysis on some or all wells, this decision would be made because the data was necessary for defined purposes such as meeting obligations under oil and gas conservation laws or for impact assessment in regards to the permitting of oil and gas wells by the staff.



IN REPLY TO:

7700
RWP



United States
Department of
Agriculture

Forest Service **RECEIVED** Region 1

Federal Building
P.O. Box 7669
Missoula, MT 59807

APR 04 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

Reply to: 2820

Date: April 3, 1989

Mr. Kevin Hart, Project Manager
Montana Department of Natural
Resources and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

Dear Kevin:

We have completed our review of the Draft Programmatic EIS on Oil and Gas Drilling and Production in Montana and have found it to be a thorough and generally very well written document. You and your staff are to be commended for a professional job.

Most of the comments made on the text were editorial in nature or simple conceptual corrections; and to facilitate submission of these comments, copies of the annotated, affected pages are enclosed.

Additionally, we have one other concern which we feel was not adequately treated in the Draft. We understand that at the level of analysis undertaken only "generic" effects and mitigation can be disclosed in Chapter 4; but it should be possible, even at this level of analysis, to disclose information on the effectiveness of mitigation measures and to describe the residual, unmitigated effects. This deficiency seems particularly clear in the wildlife section where the possible severity of many of the impacts is greatly reduced by mitigation measures usable on private, state, or federal land or mineral estates. It would also probably be desirable, if time permits, to identify those instances in which mitigation measures could only be implemented with a "surface-owner agreement".

If you have questions on any of our comments, please call Mark Weber at 329-3592. In closing, let me add that the excellent overview of oil and gas activity and effects given in this EIS will be of assistance to the Forest Service in the preparation of NEPA documents for leasing and the review of drilling permits. In many cases, we may decide to incorporate, by reference, much of this material to add to the comprehensiveness of our documentation. Congratulations on a job well done.

Sincerely,


CHARLES E. WASSINGER
Director, Minerals & Geology



Caring for the Land and Serving People

FS-8200-28(7-82)

The technical comments submitted by the Forest Service are addressed individually on the following pages.

It is not the purpose of the draft PEIS to present a catalogue of information regarding the authority to implement mitigation. But, the Forest Service does raise several points regarding mitigation which require a response based upon conclusions reached in the draft PEIS.

The draft PEIS concludes that mitigation can be effective in reducing adverse impacts. However, the effectiveness of the measures depends on a number of site-specific factors and whether these factors are considered when applying mitigation. Therefore, many of the issues raised by the Forest Service about mitigation are made on the basis of generalizations that may or may not apply to a specific drilling proposal. As noted in the draft PEIS in Chapter Five, a number of factors are likely to influence not only the potential for adverse impacts but also the severity and significance of those impacts. Thus, the draft PEIS concludes that an environmental analysis process for the Board be designed to allow consideration of problems in the context of individual permit decisions.

In the comment, the Forest Service questions the discussion of the effectiveness of wildlife mitigation. As noted in impact literature and the draft PEIS, the effectiveness of wildlife mitigation depends on the scope, timing, duration, and types and number of impact-causing activities affecting a particular species. In general, the Forest Service comment does not recognize that significance of adverse impacts and necessity for mitigations may vary. It is important to note the finding of the draft PEIS that impacts from oil and gas development cannot be prejudged. For this reason, further attempts to discuss the effectiveness of mitigation and resultant residual effects in the abstract would be of limited value for meeting the requirements of Senate Bill 184.

TECHNICAL COMMENTS - U.S. FOREST SERVICE

1) On page 5, top left column, it could be noted that earlier dates for oil development in Montana are known. For example, 1901 was the year that oil was discovered near Kintla Lake and in 1904 the Swift Current field was discovered.

2) On page 46, right column under heading U.S. FOREST SERVICE, the following changes should be made: At the start of the second sentence, add "Using a process similar to the BLM.". The end of the same sentence should be modified to read "... BLM has the responsibility for issuing leases and drilling permits."

3) In Table 1, under Forest Service requirements for seismic permits, the citation to the F.S. Manual should be "2860."

4) On page 58, left column, under heading U.S. FOREST SERVICE, the following changes should be made to the first sentence: Remove the word "typically" on line one; on line two add the words "of operations" after the word "plan." Add the following new sentence: "This review, consistent with the provisions of NEPA and the procedures set forth in BLM's Onshore Oil and Gas Order Number 1, considers the individual and cumulative effects of drilling or subsequent development proposal. The Forest Service determines whether such actions are consistent with the management direction given in the applicable forest plan or other supporting environmental documents."

5) Page 60, left column, before ENVIRONMENTAL PROTECTION AGENCY, add the following: "In response to legislation enacted in 1987, the Forest Service is drafting regulations (36 CFR 228E) which will detail the measures required during production and abandonment activities for federal minerals underlying lands in the National Forest system. These provisions would be similar to those adopted by the BLM. Inspections to determine compliance with regulations would be coordinated with Forest Service and BLM personnel participating."

6) Page 77, left column, heading "Slope Angle." The discussion in this paragraph is grossly overgeneralized. This discussion is generally true for fine-grained, weathered, or unconsolidated deposits, but is of little use otherwise. It is not difficult to build an environmentally acceptable road on 60 percent slopes. The "Gold Book" issued by the BLM and the Forest Service describes measures that can be taken in constructing such a road.

7) Page 77, right column, last paragraph. The last sentence should be modified. After the words "should be," replace the remainder of the sentence as follows: "... undertaken only if special attention is paid to site-specific engineering and design measures."

8) Page 78, left column, third paragraph. On line 11 of paragraph after the word "highest," insert the word "unmitigated."

Item 1: Comment noted.

Items 2, 3, and 4: These changes have been incorporated.

Item 5: The addition has been made.

Item 6: We disagree in part. While this paragraph may be generalized, it is nonetheless true. The Forest Service comment misses the point of this paragraph. The intent of the paragraph was to illustrate that additional time, effort, and money is often required to construct environmentally sound roads on steep slopes.

Item 7: This change has been made.

Item 8: The addition of this word would alter the meaning of this sentence beyond its original intent within the content of the paragraph. The change is not made.

Item 9: We disagree. The comments by the Forest Service are not supported by the available literature. The question of soil moisture as it relates to susceptibility to compaction is best addressed by Baver, et al. (1972). In essence, there is an optimum soil moisture level where maximum compaction can be expected for a given applied force. The reader also is referred to Ontario Hydro (1979) for additional information.

Brady (1974) explains the relationship between organic matter in the form of root mass in the soil profile and the degree of susceptibility to compaction.

Item 10: Disagree in part. The intent of these guidelines is to provide methods to achieve low soil compaction. It should be recognized that distinct tradeoffs in impacts may exist with the needs for all-weather access. When drilling an exploratory well, access considerations, particularly in mountainous terrain, may require case-by-case evaluation.

Item 11: Agree in part. Reference to the "Rocky Mountain Front" may be confusing for some readers. Development has occurred on the foothills extending out from the Wyoming Mountain Range. The following change should be made after the word "foothills"; substitute "located to the southeast of mountains in the Wyoming Mountain Range" for the words "adjacent to the Rocky Mountain Front."

Item 12: Disagree. This comment misses the point of the referenced discussion. The purpose of the draft EIS is not to assess the significance of coal mining impacts. Rather, the intent of the discussion was to indicate that while lacking studies regarding oil and gas development impacts, sufficient knowledge exists to predict that the species affected and how they react to development probably differs in various parts of the state. More importantly, the significance of the expected impacts must be assessed within the context of circumstances and factors that exist in areas where development is to occur.

Item 13: Disagree. The intent of the paragraph is to illustrate that access requirements will vary depending on terrain. While well spacing and well depth also may affect access requirements, this comment assumes deep wells and mountainous terrain always occur in the same context. This assumption also ignores well spacing differences that exist for oil versus gas wells.

Item 14: Agree in part. This comment is correct in pointing out potential problems with well site drainage directed toward the reserve pit. However, this comment misinterprets the referenced paragraph. The measure addressed "proper drainage" and does not specify that drainage lead to the reserve pit. The suggestion for a dike around the location provides protection against uncontrolled runoff from the drill site and allows for containment of fluids should the reserve pit overflow. The best choices of options for site construction is made on a case-by-case basis in consideration of individual location situations.

Item 15: This change has been made.

9) Page 78, right column. The first paragraph under the heading "Soil Compaction" contains incorrect statements and is grossly misleading. This paragraph should be deleted.

10) Page 79, top of page, right and left columns. The measures discussed here may be appropriate for temporary access trails during dry weather or frozen soil. These measures do not adequately reflect techniques that will be necessary for construction of a general purpose access way for drilling deeper wells in mountainous terrain.

11) Page 112, right column, third paragraph, second to the last sentence. This sentence is either incorrect or something is missing.

12) Page 112, right column, fourth paragraph. This paragraph appears to be contradictory. In early sentences, the paragraph describes that studies indicate mule deer and antelope numbers increased despite mining and human disturbance. Later the paragraph states that the only detrimental impact documented was increased numbers of deer road-killed or poached. It is unclear whether or not these impacts were found to be significant in light of increased populations.

13) Page 114, right column, second paragraph. This paragraph does not take into account the probable spacing requirements that would apply to the deeper wells in mountainous terrain.

14) Page 120, left column, second paragraph. Often it is not desirable to construct a drill location such that runoff from the pad drains to the reserve pit. In certain instances, the runoff can quickly fill up usable volume in the pit and can lead to overflow problems.

15) Page 215. Please note that Chuck Wassinger is Staff Director of Minerals and Geology and not Deputy Forester as cited in the draft.

Conservation Organization Comments



MONTANA ENVIRONMENTAL INFORMATION CENTER

Kevin Hart
Project Coordinator
Department of Natural Resources and Conservation
1520 East 6th Avenue
Helena, Montana 59620

May 12, 1989

Dear Mr. Hart:

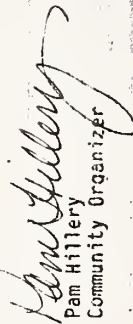
The Montana Environmental Information Center (MEIC) is writing to comment on the Programmatic Oil and Gas EIS. MEIC applauds the Board of Oil and Gas Conservation for beginning the process of examining the impacts of oil and gas exploration in Montana. The issue of drilling is complex, owing to both complicated geologic formations and a perhaps more complicated political process. The draft programmatic EIS is a step in the right direction.

However, it is only a step. Oil and gas exploration and development in Montana has many long-term, cumulative impacts which need to be recognized and addressed. Production activities and waste disposal are significant impacts of this type of development, and yet are inadequately addressed in the draft EIS.

In addition, external costs such as groundwater contamination, soil degradation, and damage to both social welfare and the infrastructure must be met head-on. These are costs of operation which are typically borne by the people and that should be borne by the developing business.

A draft EIS is a good beginning. We look forward to the public meetings to discuss this issue. Thank you for accepting our comments, and good luck.

Sincerely,


Pam Hillery
Community Organizer

This comment suggests that the draft PEIS is deficient because it does not cover certain environmental and social issues in greater detail. The purpose of the draft PEIS was to assist the Board in developing a process to comply with MEPA without unduly delaying drill permit approval. For this purpose the draft PEIS adequately identifies potential environmental issues and concerns. The Board will address the need to revise rules in the areas of waste disposal, groundwater protection, reclamation, and production activities.

GREAT BEAR FOUNDATION

P.O. Box 2699
Missoula, MT 59806
(406) 721-3009

May 8, 1989

Mr. Kevin Hart
EIS Project Coordinator
DNRC
1520 East 6th Avenue
Helena, MT 59620-2301

Re: oil-gas EIS

Dear Mr. Hart:

I'd expected the EIS to include a graphic that would show "where the money goes," including royalties to state and Indian reservations. We are enclosing a copy of an article which discusses royalty payments in detail, and believe that it should be part of the EIS. The EIS analysis of where the money actually goes is a critical one, if only because oil-gas development is commonly described as bringing considerable economic gain.

A generic EIS such as that proposed must include a worst-case scenario to be publicly issued with each drilling proposed. The worst-case scenario should include all cumulative effects of oil-gas drilling and every other existing and proposed development (e.g. country roads and landfills, subdivision, dams, etc.) within a radius of at least 35 miles of the proposed well, in order that effects on wide-ranging wildlife such as elk and grizzlies can be more realistically assessed. The required worst-case scenario for every drilling proposal should be an all-inclusive one that lists hydrogen sulfide blowouts; pipeline ruptures; spillage and runoff of sweetening-plant wastes; roadbuilding to 10 to 30 stepout and other wells; spread of stock reservoir contamination; large-scale oil spills; disposal of muds containing lead, arsenic, etc.; all forms of Montana taxpayer subsidy to the industry and the opportunity cost of not supporting alternative energy sources; the decreasing likelihood of discovering new fields vs. the advantage of drilling in known fields; the costs of bust when fields run dry; information from the Natural Resources Defense Council study of the impact of drilling and related oil development at Prudhoe Bay; the impact of subdivision of nearby ranchlands; and other cumulative ecological and economic impacts associated with development that can follow the drilling of test wells. The EIS cannot isolate test wells as if they would exist alone in a roadless wilderness tract that stretches unbroken for miles and miles in every direction around the well.

The draft PEIS discusses the royalty revenue generated by oil and gas development to state and local governments. Additional detail is described in the Technical Appendix volume. The analysis of these issues is sufficient to meet the purposes of Senate Bill 184. The article referenced does not change this analysis, require additional analysis, or affect the process for implementing NEPA discussed in the draft PEIS.

The discussion of a worst-case scenario has little, if any, value for a programmatic impact statement designed to establish a process for evaluating the environmental effects of individual drilling proposals in Montana. The PEIS demonstrates that the potential for impact is based on a number of factors that cannot be objectively considered in the abstract. While the potential for adverse effects may exist with oil and gas development in sensitive locations, it is not possible to realistically or reasonably assess impacts or mitigation requirements without consideration of site-specific factors or circumstances. The draft PEIS suggests a method to be used in evaluating such effects and possible alternatives within the context of a specific drilling project and site.

Mr. Kevin Hart
May 8, 1989
Page 2

Energy is consumed in the process of getting it. Late in the 1970s, Science reported that oil drilling in some cases burns more than is gained. An analysis of this should be included in the Final EIS.

We appreciate the opportunity to comment on the draft EIS. If you have any questions, please feel free to contact me for further information and explanation of our concerns.

Sincerely,



Lance Olsen
Executive Director

Enclosed: NSC Screwed Up

An analysis of the amount of fuel consumed during drilling is not needed to meet the requirements of Senate Bill 184.



Photo: Chevron Corporation

by
John
Eisendrath

YOU THINK THE NSC IS SCREWED UP?

Take a look at Washington's worst run program

You can always tell a government program isn't working well when the General Accounting Office decides it can save itself some work by starting each new report on a program with the exact same paragraph. The federal government's royalty management program, operated by the Department of Interior, is a prime example. "Historically, [Interior] has not placed a high priority on the collection of oil and gas royalties," begin the GAO's 1981, 1982, and 1983 reports. "Consequently, serious deficiencies in the collection system that were identified over 20 years ago persist today."

During the past 32 years, three task forces, one blue ribbon panel, and five outside contractors have tried to improve the Interior's management of this huge program; the GAO, Interior's own inspector general, and five different congressional committees have weighed in with 18 reports totaling 1,319 pages.

Without success. The problem is now worse than ever. According to a report issued last September by the House Appropriations Subcommittee on the Interior, the government may be failing to collect as much as \$1 billion a year in royalties. The government, of course, disputes the exact amount, but admits that hundreds of

John Eisendrath is an editor of The Washington Monthly.

millions of dollars did go uncollected in 1985, and that over the years, billions more have been lost. The subcommittee estimated that the undercollection rate is twice that of five years ago, and more than triple the estimated undercollection rate of 1975.

These royalties are paid on oil and gas pumped from federal and Indian lands that have been leased to private companies. In exchange for their leases, companies pay 12 to 16 percent on whatever they produce, which can be a significant source of revenue; since 1979, the government has collected more than \$28 billion. Indians receive all the royalties paid by companies leasing their land; States get half the royalties earned from public land inside their borders.

Now, you may have more important things to worry about than whether New Mexico is getting its fair share of royalties. It's a good bet most people in New Mexico don't even care. What everyone from Santa Fe to the Senate should care about is that the royalty management program represents government so out of control it makes the National Security Council seem orderly.

The seven percent solution

Until 1982, royalty management was done by Interior's U.S. Geological Survey (USGS), a divi-

sion well respected for its scientific undertakings. But even in 1959 the GAO pointed out that the study of rocks and the collection of money have little in common. Interior informed Congress that it "seriously considered" this point in 1963 and again a year later. Interior's thoughtfulness, however, was swiftly followed by decades of inaction.

The geologists meant well. In an early effort to straighten out the collection mess, the director of USGS in 1954 ordered a bureau-wide audit under the direction of a new chief inspector. The only problem was that the order provided no staff. For seven years the "chief" inspector was the only inspector. When the GAO noted the chief inspector had not yet conducted an audit, it suggested USGS give the poor guy some help. A small staff was assigned in 1961, but no audits were done until 1964.

For most of the next 15 years, USGS maintained this grueling pace. Of a sample of 5,000 leases in 1979, the GAO found that only eight had been audited. The following year, a look at 18,000 leases showed that USGS auditors had examined only 92.

To do all this work, the royalty management program by 1980 employed 321 people. Unfortunately, 315 didn't know very much about collections: only six were CPAs. When a blue ribbon panel pointed this out to Interior in 1982, the agency decided the Minerals Management Service could do a better job. The MMS has 130 auditors, 108 accountants, and a staff of 618 whose sole purpose is to collect royalties.

But for all its apparent expertise, the MMS has done its predecessor proud. To make up for all the previous lax years, the MMS in 1983 began auditing the major companies involved in oil and gas leasing over the previous five years. Auditors were assigned, money was appropriated, and sure enough, \$320 million in underpayments was found. That sounds like a lot, but Congress now estimates that undercollections for those years total about \$5 billion—15 times the shortfall MMS found.

Officials at Interior are so proud of collecting less than 7 percent of what it is owed that they are reluctant to take on more auditors. In 1984, when MMS had 90 auditors, MMS director William Bettenberg told Rep. John Murtha, "We're in good shape on auditors." A wary Congress gave him more anyway. Last April Bettenberg told Rep. Sidney Yates, chair of the House Appropriations Subcommittee on the Interior, that the 130 auditors now on staff were all he

needed. Only after an internal report concluded that by spending \$2.5 million more on 50 auditors the department could increase collections by \$20 million, did Bettenberg admit that more auditors would be helpful. But in September, when Yates asked Bettenberg whether he'd like 100, Bettenberg replied: "We think not."

'A certain amount of chaos'

Of course, it doesn't matter how many auditors Interior has if they can't figure out what they're supposed to do. It would seem, for instance, simple to decide how much a company owes in royalties each year. Just determine the market price on the oil and gas, apply the applicable royalty rate, and send out the bills.

Interior has never quite figured this out. Between 1949 and 1959, the department simply failed to bill a number of oil producers for royalties, including one that owed more than \$250,000 because USGS officials couldn't agree on what its production was worth. No bill, no royalties. After the GAO expressed concern over this lack of collections, USGS officials assured investigators, "Although all the items have not been billed, considerable action has been taken to bring the work up to date."

In fact, little action had been taken years later. In 1972 the GAO reported that the USGS determined the value of oil and gas by relying on the price the company set—even when that company was selling oil from one subsidiary to the next. Not surprisingly, an examination of only a small fraction of producing wells exposed hundreds of thousands of dollars in royalties lost due to artificially low prices. Again, the USGS promised that the "assistant secretary has ordered the present operating manual reviewed as rapidly as possible... to ensure that no [questions] remain about the computation of royalty payments." Nine years later the acting director of the USGS was again soberly assuring Congress that Interior was working on "a new accounting system that would solve the valuation problem." The system, he said, would be operating by 1984. There is still no such system.

Moreover, there are still only loose guidelines for setting a price on oil and gas. This leaves both conscientious companies and department auditors confused. Consider this exchange last fall between Bettenberg and Rep. Yates:

Yates: How in the world can a company know whether it is complying with what you expect them to do? If they have no guidelines, how can your auditors know whether the company is com-

plying? Isn't it total chaos?

Bettenberg: It's not total chaos.

Yates: It is just chaos.

Bettenberg: There is a certain amount of chaos out there.

How much? Enough that not only is Interior failing to collect royalties but oil companies are successfully suing the department to get back the small percent of royalties the government does take in. In the absence of specific valuation guidelines, the industry has successfully appealed a number of audit findings on the grounds that the rules are open to interpretation.

Last fall Interior finally came up with a sure-fire way to solve the valuation question: it decided to let Conoco write the guidelines. By the MMS's own estimation, Conoco's proposal would have saved oil and gas companies \$600 million. Though the MMS's Royalty Management Advisory Committee vetoed the proposed guidelines by one vote last October, new regulations now pending are no better. If implemented, they would require states and Indians to rebate millions to oil and gas companies for royalties collected since 1982.

Even when Interior does manage to snag some royalties, it has a hard time keeping track of them. Over the years, the vast majority of lease accounts have been inaccurate. Of the 22,735 such accounts kept by the USGS in 1979, 16,166 were so poorly maintained that there was no way to know whether the government was owed money or whether the companies had paid too much.

When asked that year about the problem, the USGS assured investigators that all accounts would be reconciled by 1981. But by May 1981 the portion of accounts with errors had grown from 60 to 73 percent. Another assurance from USGS was followed 11 months later by another GAO report. Same first paragraph. Same conclusion. An analysis of 275 lease accounts disclosed errors totaling \$1.1 million, indicating, according to the GAO, "the seriousness of the problem the Department has faced in maintaining accurate lease account records."

Interior's solution? Purge some accounts that had discrepancies. This might seem a prudent approach if directed at the small but time-consuming accounts. But the department naturally opted to wipe the slate clean for only those accounts where the books were off by *more than* \$100,000. The government might be owed \$100,000, or it might have been overpaid by that amount—starting in 1985, all accounts that large were wiped clean. In their defense, Interior officials told Congress that they had run a cost-

benefit analysis that backed up the write-offs. When asked for a copy of the analysis, Interior officials said that all the copies of the report had somehow been misplaced.

When the agency does collect royalties properly, it doesn't have a compition about quickly sending Indians and states their share. In 1979 Interior made \$359 million late payments; in the second quarter of 1980, \$98 million; and in 1981, \$390 million. In 1982 an irritated Congress passed the Federal Oil and Gas Royalty Management Act, which required, in part, that Interior disperse royalties within 30 days of receipt. Needless to say, Interior has not complied with the law. In 1985 thousands of Navajos whose lands are leased for oil and gas production sued the department over late payments. Last July, U.S. District Court Judge Edwin Mechem ruled in the Navajos' favor, saying the department had consistently failed to satisfy the requirements of the law.

Blind ambition

Considering the history of the program, it should come as no surprise that the one innovation Interior billed as its panacea for royalty collections followed exclusively in the sound management tradition of its other reforms. In 1979 Interior began work on a new computer system to track royalty collections and distributions and gave MMS responsibility for overseeing the conversion of data from the existing system to the new computer. Given the importance and complexity of the problem, one might imagine that the MMS would assign as many top-flight people to work on it as possible. Instead, according to an internal General Services Administration (GSA) report last August, which we obtained through the *Denver Post*, the MMS assigned 14 people to manage the project, only three of whom had any experience in converting data from one system to the next. Only one of those three had any experience in the kind of conversion the MMS was attempting. Moreover, the man MMS put in charge of the project—the man responsible for steering Interior away from the rocks for jocks stewardship of the USGS—was, that's right, a geologist.

The new computer is a dud. To date, Interior has spent \$82 million on it, and it still doesn't work properly. In August, six years after Interior leased the first contract for the computer, the GSA predicted that unless changes were made, "the project may ultimately fail."

In September 1980, the initial development contract was awarded on a sole source basis to

Sterling Systems, Inc., which in turn subcontracted to Arthur Andersen and Company. It quickly became apparent that Andersen was doing all the work. Rather than pay two companies for work only one was doing, Interior canceled Sterling's contract in February 1981.

But the department then chose not to follow Andersen's advice that, for \$11 million, a new system could be set up using three mainframe computers already in the USGS inventory. Instead, the department started over. By September 1981, three new contractors had been hired to do three separate tasks: development, oversight, and data processing. Rather than use the available computers, American Management Systems (AMS), the company awarded the development contract, designed a new system around one mini-computer, or VAX. Interior purchased one that October. By May 1982, with only 10 percent of the data entered, the VAX was overloaded. A second was purchased. Then a third. Within a year there were six and all were over capacity.

Apparently the minis weren't designed for high-volume input, and no software existed to process so much information. Interior could buy 50 minis and the computers still couldn't keep up. So what was MMS's oversight team doing? According to an internal department report, it had no idea. "AMS inundated the MMS staff with paper," the report notes. "Many of these documents containing key design decisions were never really read or analyzed by the MMS staff. . . . It soon became apparent that only [AMS] fully understood the intricacies of the new system."

What everyone did understand was that opting for the VAX system had turned out to be a \$50 million mistake. It was also a waste of four years. Interior decided to go back to the mainframe computer idea Arthur Andersen had suggested in 1980. To implement that, in April 1985 the department awarded a \$32 million contract to the Martin Marietta Corporation. Marietta was supposed to complete the system by December 1985. It didn't. It then missed all its 1986 deadlines. Rather than miss another, Marietta now says only that the system will be operational sometime this year.

Interior has fined Marietta \$979,498 for the delays. Marietta refuses to pay, saying the government's records are in such bad shape they cannot be fed into the system. Blaming government delays for its inability to meet its deadlines, Marietta is now demanding \$1 million from the agency. One internal MMS report concedes the agency has "error-ridden files that still have not

been completely unraveled or reconciled." At the same time, a GSA report concluded that Marietta's management team was no keener than MMS's: "Martin had no personnel with significant conversion management skills assigned to this project [until] about four months after the project got underway." The GSA concluded that the \$32 million contract "can be characterized as a case of the blind leading the blind."

Problem? What problem?

The standing joke among those involved in royalty management is that after 33 years of trying to correct the program's problems, it still takes ten bureaucrats to collect royalties. One to underestimate the amount owed and nine to make sure the payments get screwed up.

Despite years of repeated criticism, the royalty program remains grist for the Borscht belt mill because Interior routinely brushes aside recommended improvements. Even when Congress made the recommendations law, the department ignored them. The reason is simple. There's no financial incentive for Interior to improve collections. Almost all the royalties collected that don't go back to the states or the Indians are deposited in the general treasury. No secretary is going to devote his or her increasingly scarce resources to a program that brings his or her department no return.

A generation of incompetence should be long enough to realize that the only way to improve the royalty management program is to make MMS salaries proportionate to its success. Without this kind of incentive, taxpayers will keep making up the difference. Indians and states that are owed royalties will continue being shortchanged, and efforts to improve the program will be met with a kind of imperviousness that leads one to conclude that Interior may even enjoy making a bureaucratic mess.

During a meeting with James Watt and four of his assistants, David Linowes, chair of the panel assigned to assess the royalty management program, says he pointed out that because the department never matched reports on the production of oil and gas with reports on sales, it was impossible to be sure the proper amount of royalties was being assessed. "The secretary looked at his calendar and said, 'As of today, we'll start doing that,'" recalls Linowes. When, months later, Linowes asked those in the meeting along with Watt why nothing had been done, he says each official replied, "We didn't hear the secretary say he was going to do anything." ■

THE WASHINGTON MONTHLY/APRIL 1987

Bridger Watch

P.O. Box 4407, Bozeman, Mt. 59715

Mr. Glenn Hart, Program Director

P.O. D. W. B. C.

State Capitol Building

Helena, Montana 59620

March 21, 1989

RECEIVED
APR 03 1989

MONTANA DEPT. OF NATURAL
RESOURCES & CONSERVATION

Dear Mr Hart,

As per our phone conversation, Bridger Watch continues to have concerns that the Draft EIS prepared for the Board of Oil & Gas, will be completed in a manner to best serve as a protection for Montana's people and provide practical guidance for the industry. Our consultant, David Murray has reviewed the Draft EIS and found numerous technical data that may be in error. He has expressed concern to us that this document would not be in the best interest of the industry or for protection of the environment until the technical data is further reviewed from an engineering standpoint. In light of the extremely technical nature of the data in question, the expense involved in reviewing such data & the extremely short time frame for public comment Mr. Murray has

This comment suggests that the draft PEIS may be in error regarding several technical points but does not indicate how the data presented are incorrect or incomplete. The comment does reference several documents regarding safety measures for drilling wells containing hydrogen sulfide gas. The three documents referenced were reviewed during preparation of the draft PEIS. A discussion of the information contained in them is found in the Health and Safety section of the Technical Appendix volume.

The Board will consider necessary revisions or additions to its rules as part of the implementation efforts to meet the objectives of Senate Bill 184. The Board would welcome technical input from Mr. Murray, industry, and any other interested persons to assist in developing practical rules and guidelines for oil and gas development.

Bridger Watch

P.O. Box 4407, Bozeman, MT. 59715

Page 2

graciously requested assistance with the Board of Oil & Gas, specifically their engineering staff. He did not feel it would have been appropriate or practical to give lengthy testimony of a technical nature at one of the public meetings. He has volunteered his time & expertise to review technical data & share his experience in compiling this data with the Energy

Division & Conservation Board of Alberta Canada. As you review his enclosed resume you will see that he is not only extremely well qualified but has worked as an advocate for the industry for many years & has developed an honorable sense of responsibility regarding environmental protection. I hope that the Board of Oil & Gas will look upon Mr. Murray offer in the manner in which it was given; that is as a gracious extension of his longstanding expertise to fellow colleagues in the oil & gas industry. I think it would be an excellent forum for discussion and

Bridger Watch

P.O. Box 4407, Bozeman, MT. 59715

page 3

sharing of ideas and that the Board would enjoy him as a guest speaker. We will await your response.

It has also been suggested to me by the E.R.C.B. that the following documents be reviewed & that the data within be compared to the Draft EIS.

① GUIDELINES FOR PREPARATION OF EMERGENCY RESPONSE PLANS FOR DRILLING, COMPLETION & TESTING OF SOLID WELLS.

Prepared by Canadian Petroleum Association, April 1987

② Interim Directive ID 87-2 AMENDMENT JUNE 1988
to Solid Well Licensing & Drilling Requirements ERCB

③ Informational Letter 11 88-9, 1188-9 amendments
30 June 1988 (to ID 87-2) ERCB

It is our hope that Montana enter a new era of mineral exploration with the spirit of national pride & responsibility for protecting the pristine environment of our state.

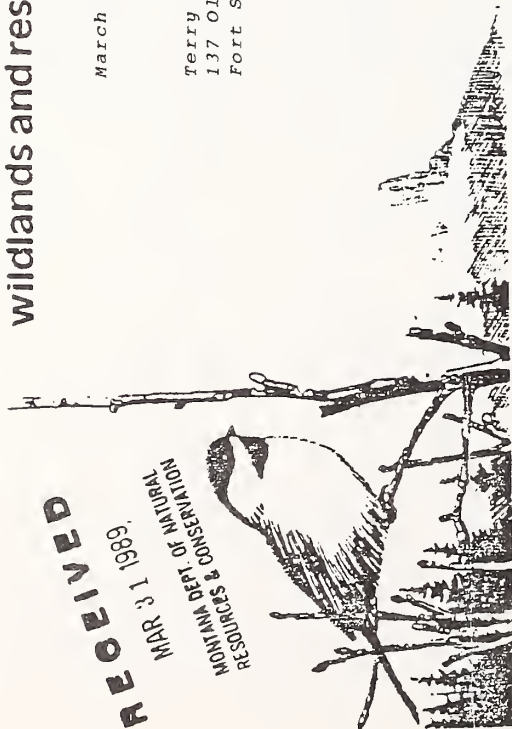
Respectfully,
Mary Ann Kelly
President

RECEIVED
MAR 31 1989
MONTANA DEPT. OF NATURAL
RESOURCES & CONSERVATION

wildlands and resources association

March 30, 1989

Terry L. Albrecht, President
137 Old Fort Shaw Road
Fort Shaw, Mt. 59443



Board of Oil and Gas Conservation
c/o Kevin Harst
1520 E. 6 Ave.
Helena, Mt. 59601

126

By the unanimous decision of our organization, we urge that you adopt the recommendations of the Programmatic Environmental Impact Statement on Oil & Gas Drilling Production in Montana. We cannot rely on self-regulation today when even minor disruptions of our eco-system has such broad-reaching impacts upon society. Montana's own oil spill at Cut Bank is an example where only 2 out of 14 possibly involved companies are willing to even assist in a solution. This is not the attitude that leads to less or to self-regulation.

Sincerely,

Terry L. Albrecht

Terry L. Albrecht
President

TLA/dla

The Board acknowledges receipt of the following letters of comment.



Montana Audubon Council

Margaret E. Adams, President • P. O. Box 2223 • Great Falls, MT 59403

MAR 24 1989

MONT. DEPT. of NATURAL
RESOURCES & CONSERVATION

Board of Oil and Gas Conservation

Helena, Montana

Gentlemen:

As President of Audubon Council I do not assume any skill or knowledge of oil and gas development. However, I do represent approximately 2500 citizens of Montana who are giving the maximum protection to our human environment whenever there is development.

I was delighted to realize that the Board of Oil and Gas Conservation had ordered their staff to prepare a "Programmatic Environmental Impact Statement on Oil and Gas Drilling Production in Montana". I attended the public meeting in Great Falls and heard many critical statements by the professional oil and gas people. In general what I heard from them was the feeling that "if something isn't broke, don't fix it."

After I had an opportunity to study the Technical Appendix Volume, Dated January 1988, I found what seems to me to be many things if not "broken" surely need to be guarded against.

I am particularly concerned about the impact oil and gas development could have upon mountainous areas such as the Rocky Mountain Front, known by geologists as "the overthrust belt".

Beginning on page 137, I find many things to be concerned about, and which it seems to me to need some protective regulations. The proved impact upon wildlife, the loss of habitat, the killing of wildlife, mortality from vehicles, death from toxic substances, and general displacement of wildlife all seem serious enough to me to require very careful regulation.

I sincerely hope that your Board will proceed with the "Programmatic EIS".

Sincerely,

Margaret E. Adams
Margaret E. Adams

Public Meeting Comments

STATE OF MONTANA

DEPARTMENT OF NATURAL RESOURCES

Public Information Forum:)
 Board of Oil and Gas)
 Conservation draft)
 Environmental Impact)
 Statement.)

TRANSCRIPT OF HEARING

Northern Radisson Hotel
 Billings, Montana 59101
 February 22, 1989

The above-entitled matter came on for
 hearing, pursuant to notice, at 7:00 p.m.

HEARING OFFICER:

R. SCOTT CURREY

Assistant Attorney General
 Agency Legal Services Bureau
 Office of the Attorney General
 215 North Sanders
 Helena, Montana 59620

LOU PENWELL: Good evening. I am Lou
 Penwell, P-E-N-W-E-L-L. I have prepared a written
 statement which I would like to read and then I
 will leave it with the secretary.

I am a native of Montana, born in
 Helena, raised in Billings. I have accumulated
 over 30 years in the oil business including 14

Responses to Mr. Penwell's comments were made earlier in response to the
 letter he submitted dated February 22, 1989. The letter and response can be
 found in the section titled: "Comments: Interested Persons."

ORIGINAL

years with the Conoco Land Department and 20 years as an independant landman.

Most of my work has consisted of land services to exploration companies, both large and small, located both in Montana and out of state. This work has provided me with a pretty good prospective of what it takes to conduct a prosperous exploration program here.

In today's business environment a successful exploration effort requires a lot of money, more than a little luck and a very tenacious attitude over a period of several years.

Not many organizations have been able to put all these factors together and as a result of this and also our declining oil prices, exploration activity and production in Montana have shown a very alarming decline in recent years.

In 1981 there were an average of 80 rigs operating in Montana. By the spring of '85 the total had dropped to 25 rigs. And last week the Oil and Gas Journal reported three rigs operating in Montana. Is it possible that this number may go to two or one or even none yet this year?

Equally alarming is the drop in oil

and gas revenue flowing into our state government and into the bank accounts of thousands of Montana mineral and royalty owners.

In 1968, shortly after the development of Bell Creek Field, we were producing 130,000 barrels of oil a day. In 1980 that figure had dropped to 80,000 barrels and at the end of 1988, we were producing, and still are, about 66,000 barrels per day.

Our total tax and production is higher than any other Rocky Mountain state. Our personal property tax is a real burden on contractors and believe me, this tax is passed onto operators if the contractor expects to stay in business. Yet here we are today talking about further restrictions on Montana operators or potential operators.

You must ask the question, why does Montana have to make it so difficult to operate here? Is our environment more precious than Wyoming's? Is our air, our water, our land more fragile than Colorado's? Those states don't have such obstacles as we are here discussing.

Senate Bill 184 and the resulting Programmatic Statement seem to dictate that some

sort of environmental review is going to be required for a permit for each and every well. I sincerely hope that someone will devise an alternative solution.

In conversations with my clients, both in Montana and in other states, I received a very negative response to any kind of delay in the permitting process. The dominant comment seems to be that once we drill our present prospects in Montana we will just be going elsewhere to explore. We just don't have to put up with any more red tape.

Is there no escape from added burden? Well, if not then I despair of ever seeing a recovery in Montana. I implore you gentlemen, and this letter is addressed to the Board, I implore you to keep the implementation of this mandate as simple as possible. Do not create further burdens. We need to make it easier, not harder to explore in Montana.

Thank you.

JANELLE FALLAN: My name is Janelle Fallan, J-A-N-E-L-L-E F-A-L-L-A-N. I live at 825 8th Avenue in Helena. My title is Executive Director, Montana Petroleum Association which is

Many of the comments made by Ms. Fallan at the Billings public meeting were submitted as written comments on the draft PEIS. The reader is referred to the section titled: "Comments: Industry" for a response to the general opinions expressed by Ms. Fallan. Responses here will be limited to new issues not addressed in Ms. Fallan's written statement.

the Montana division of the Rocky Mountain Oil and Gas Association.

We have been involved in this process as long as this process has been going on starting in 1985 with the first attempt to exempt oil and gas drilling from MEPA all together in this state.

We still believe that issuing a permit to drill a test well for oil or gas is not a major action of state government significantly affecting the human environment as stipulated in MPA.

More the 28,000 wells have been drilled in Montana resulting in more than 6800 producers with no significant impairment of the human environment.

State laws now exist to protect the rights of all parties affected by oil and gas drilling. We fear that MEPA is not being used to protect the human environment but to stop oil and gas drilling by challenging the permitting process or adding prohibitively to the expense.

Looking specifically at the document before us there is a lot of excellent information in this statement. It is very obvious that a great deal of work has gone into it. The initial

chapters are very informative, but, there is always a, but for starters you heard about the councils that were organized to advise on this. I would just like to point out that between the advisory council and the technical council there was exactly one person involved who has ever even drilled a well.

Some specific concerns about the EIS.

Chapter 4 contains the description of impacts and mitigating measures associated with drilling for and producing of oil and gas. The chapter details a list of coulds and mights, all negative. From page 73 through page 173, the document identifies a host of perceived environmental concerns that could be associated with oil and gas drilling and production.

The lengthy discussions about air, water, soil, wildlife, health and safety, fisheries, noise, land use, recreation, vegetation, social and economic effects and historical resources are all negatives and all potentials.

This negative mode maybe inherent in the EIS process, but it is not supported by the impacts of the 28,000 wells drilled to date. Little note is made of industry practice to

It should be noted that three authors' draft versions of the programmatic EIS were provided for review by Ms. Fallan and representatives of the Montana Oil and Gas Association. Ms. Fallan's comment seems to imply that the draft PEIS is somehow technically inadequate because industry representatives were not responsible for writing portions of it. Such suggestions are without merit.

The draft PEIS is criticized here for its perceived negative tone, the lack of credit given to industry practices to mitigate negative impacts, clear discussion of authority of the Board to require measures, and ignoring the rights of private parties. The reader is referred to the responses to letters by Cenex, Exxon, and Chevron for discussion of these issues. The reader also is referred to comments at the Billings and Sidney meetings regarding oil and gas problems experienced by landowners.

mitigate any of these negative impacts or of their likelihood or relative importance.

Much of chapter 5 is devoted to flight use and road construction. These activities occur on the surface of land owned by the state, federal government and private parties. In the absence of infringement on the rights of others, surface owners enjoy the full use of property rights. The Board of Oil and Gas does not grant surface access permits nor does it grant rights of way or easements.

For the study to conclude that the Board has responsibility for these activities is to ignore the rights of owners.

Chapter 5 goes on to suggest how the Board may regulate perceived environmental concerns without addressing the rights and obligations of all involved parties.

The Board must look very carefully at the questions raised in Senate Bill 184 and repeated on page 1. Since those were read at the beginning of the hearing I won't repeat any of them, but I hope the Board will consider very carefully whether or not those questions are answered by this draft document. There are a lot

Despite the implications to the contrary in these comments, the draft PEIS contains the information necessary to address the items in Senate Bill 184. The draft PEIS, in conjunction with a process to be selected through this final PEIS, will provide the Board with the mechanism and procedures to comply with the requirements of Senate Bill 184.

of words, a lot of discussion, a lot of charts and graphs, but again I would hope that they would very carefully consider the impact of those questions.

I would also like to raise the question since everything that is asked at these hearings must be answered in the final document, whether there is any significance to the fact that the list of tasks the EIS must accomplish are not in the same order in the statute as they are in the document.

A statement that should have led the EIS is found on page 131.

"Oil and gas exploration
is generally a temporary
activity and its disruptive
effects on agriculture
tend to be short term."

Now if you struck the word
agriculture, you could replace that word with
almost any other activity or interest and still be
completely accurate.

We would also like to emphasize
another statement found on page 175. Takes a long
ways into that document to find these nuggets.

"In most cases the drilling

The quoted statements cannot be used out of context or in the abstract to justify opinions or reach conclusions not supported by analysis in the draft PEIS. To use these statements otherwise suggests a lack of understanding of the impact assessment process and ignores the relationships that exist with actions such as drilling and production that can have direct (on-site), indirect (off-site), short-term, long-term, and cumulative impacts. The drill permit review process suggested for use by the Board would provide the vehicle to make reasoned and environmentally sound decisions within the context of problems raised by the individual permit.

of an individual oil or gas well will not result in major adverse impacts on the environment if proper care is taken in the siting and construction of the drilling location and access road; if drilling modes and fluids and any other wastes are disposed of in an appropriate manner; if safe drilling practices are observed and if the site and road are properly recleaned."

That is what we have been saying all along.

We would like to submit written comments prior to the March 31st deadline.

JOE KAGIE: I will attempt to do this. In lieu of reading my statement I will give you my name, then hand it to the secretary here so that not all of you will have to struggle with me. My name is Joe Kagie, K-A-G-I-E. I am the Director of Safety for Balcron Oil Company. I have a prepared statement directed to Kevin Hart, the

Reader is referred to the letter from Balcron Oil Company dated February 22, 1989, and found in the section titled "Comments: Industry."

project manager. Thank you.

(Written statement given to Scott Currey.)

MR. CURREY: I know according to the sign-in sheets there were a number of other people that stated that they did intend to testify. At this time, are there any other individuals who wish to testify? If not, then I will call this public hearing to a close.

Excuse me. Yes, sir. You wish to testify?

HAROLD HENDERSON: My name is Harold Henderson, H-E-N-D-E-R-S-O-N. And I live down by Sidney. I am a landowner and also a member of a Land of Mineral Association.

We certainly need production. I agree with everything that is said so far. But it isn't all just rosey.

I can name two instances. One where a well had to be drilled because his water well was ruined and another one where a well was drilled in a creek stream and a live stream. And I am downstream on that, where this well site was and people used to come out from Sidney and get minnows.

The reader is referred to responses to comments Mr. Henderson made at the Sidney public meeting where the issues raised here are responded to.

This well was drilled about 4 years ago, 5 years ago possibly, right in the horseshoe of a live stream, probably about 100 feet or less from the stream. There hasn't been a minnow in that stream, I haven't been able to irrigate out of that stream since this well was drilled.

So, let's have well drilling, but let's take care of it. We, as farmers, use probably more oil than the biggest segment of oil users in the country, but we can control it. And this is just two instances. There's many more I could mention. So let's proceed with caution.

DOUGLAS M. CLARK: My name is Douglas M. Clark, C-L-A-R-K. I am manager of Exodus Exploration and also president of the Yellowstone County Planning Board, and I am a resident of Yellowstone County.

I have been a resident and in the oil and gas business here in Billings for close to 6 or 7 years and as a member of the Yellowstone County Planning Board we are dealing on a continuous basis with trying to entice new business here in Yellowstone Valley and Billings area.

I feel that the more regulations that are put on the oil and gas industry, the more

The reader is referred to response to the letter from Exodus, Inc. where Mr. Clark's general and specific concerns are addressed (see "Comment; Industry").

detrimental effect it has on the Billings economy. I think those who live here in Billings or are familiar with the area know full well what has happened here in the last six or seven years to our tax base, to our educational systems due to lack of revenue and I think that a good long hard look should be taken at any and all regulations that are detrimental to the oil and gas business.

I don't believe that the oil and gas business is advocating complete destruction of a pristine environment that is within the borders of Montana. And I think there are some laws in the books presently that stipulate drilling procedures, correct drilling procedures, and reclamation of drilling sites after the drilling has been completed.

And so I hope that these things will be taken full of consideration when this document comes to its final completion. I reserve the right to submit specific written testimony considering this document up until the time of the discontinuance of the public hearing.

Thank you.

MR. CURREY: Does anybody else wish to present testimony?

Allright, I'll remind you all that--

DAVID HERN: I am David Hern. I am a petroleum geologist consultant who has been working here in Montana since 1980. I have seen the good times and I have seen the bad.

One thing that I am worried about is the cost of implementing this. If this plan is implemented to the state, the state has had times too because the oil industry haven't, they haven't been getting the revenues because the minerals industry haven't been there.

And I was talking to some people at the BLM who I used to work with, and they threw out numbers off the top of their head. They were saying that everytime you needed an environmental impact analysis for a well it would take \$100,000 for each one, and 50,000 just for an anal--, just for an assessment, environmental assessment.

So if there is any kind of plans to do that with every well that has been permitted, it would just be taking an incredible amount of money and there is not that money in the state these days. It is just not even feasible. There is going to have to be a problem of how it's going to be done with the government the way it is, and I

Mr. Hern raises concern over the potential cost of implementing the environmental review process and cites dollar estimates for impact analysis. While there will be administrative costs associated with the implementation of a drill permit review process, these costs will be kept to a minimum. MEPA establishes a schedule of fees based on project costs collected only when an EIS is to be prepared. Figures cited in this comment are not an accurate reflection of the costs that will be associated with most drill permit reviews that are expected to be handled by existing Board staff.

think that is going to be a real problem.

MR. CURREY: Is there any additional testimony?

(No response.)

Allright, before closing the hearing I would like to remind everybody that you still, that you have the opportunity to submit written comments up until March 31 of this year. And if there is no additional oral testimony to be given, then this public hearing will now come to a close.

Thank you.

(Whereupon, the hearing was concluded at 7:45 p.m..)

The following is a transcript of the hearing on the Programmatic Environmental Impact Statement on Oil and Gas Drilling and Production held in the basement of the Sidney Public Library in Sidney, Montana, on March 1, 1989:

VERA HENDERSON: I guess this is kind of a case of "Might as well get it over with". I am Vera Henderson. H-E-N-D-E-R-S-O-N. My husband, Sherill, and I live and farm a few miles north and west of Sidney in Section 33, Township 24, Range 59.

I'm here tonight because it really disturbs me when an elected and/or appointed official makes a statement, which has been made in this context, that the study and the safeguards that we're trying to put into it are not necessary; that there really are no problems. So, I have documentation here of a problem, the pollution of the waters of a flowing stream that runs through the area northwest of Sidney and flows into the Yellowstone River. This came about because of, I think, a very slack or no inspection of

The problems identified by Mrs. Henderson were considered during preparation of the draft PEIS and Technical Appendix. The record of pollution problems on First Hay Creek is described on page 63 of Technical Appendix 3, Water Resources (see discussion under Dewey Study Site 1), and summarized in the draft PEIS on page 91 in Table 11 as Site Number 1.

the drilling site because the well was put in the bend of a creek. The drilling mud pit was put right on the edge of the creek bank in a high water table area so they couldn't even sink the liner. An expensive liner was put in but it wouldn't sink because the ground water table was too high, so they perforated it so it would sink. So, there you have ruined all of your protection right there.

The documentation I have here, I'll leave some of that with you too, includes letters from Rod Samdahl, the geologist from the Department of State Lands, and he mentions his context on this situation after complaints were received from the surface lessee, Ole and Judean Sundheim, from John Schontz, a Sidney legislator, and Kevin Keen of the Water Quality Bureau, Larry Carrol, vice-president of Love Exploration, all of whom were contacted by my husband, Sherill Henderson, at the request of the surface lessee to the State Lands when the waters of First Hay Creek, which flows through these lands, became so contaminated from drilling pit fluids that the cattle they were pasturing on their lease could not drink from the creek, and there's a copy of Rod Samdahl's letter attached.

Then there's a letter dated June 9, 1981. This is 1981. This is when drilling was going high, wide and handsome here, from the Exploration Company, 1301 First National Bank Building, 621 17th Street, Denver, Colorado,

from Mr. Edward Carney to Mr. Sundheim, with copies to Judean Sundheim, Sherill Henderson, Rod Sandahl, Board of Land Commissioners, and Mr. Joe Simonson of the Oil and Gas Commission, and this letter details the action agreed upon at a meeting in Billings to attempt to remedy the situation.

Now, my husband and I had filed a water right on our land when we moved onto it in 1941, and over the years we have continued to develop our irrigation system on this First Hay Creek for part of the farm using the waters of First Hay Creek.

My husband took part in the water testing program that was initiated through our county agent, and on May 20, 1981, we had the waters of First Hay Creek tested as the water leaves our land. It showed an NAACL level of 95.6 milligrams per liter just as the waters leave our place. This is on Section 33.

Mr. Sundheim contacted us when they could get no cooperation from the drillers of this oil well after water samples they had taken below the well site and sent to an independent lab showed that a real problem existed. The lab told them that, "Well, it won't kill your cattle because they won't drink it." It was so contaminated that they would drink above the well site but not below. So, my husband contacted the State Water Quality Bureau, the Board of Oil and Gas Conservation and the Department of State

Lands since this was a state lease. A meeting was called in Billings documenting the attached letters.

Our concern is the continued damage to the water of the First Hay Creek possibly, or maybe probably even, from the saturation of the ground at the drilling site from the leakage from the reserve pit. I have here the weekly tests that we got after they were ordered to test weekly, and week-by-week they give the readings at 200 feet above, 100 feet above, at the well site. One hundred feet below, 200 feet below, 300 below and at our place as it leaves our place, which is about two miles downstream.

Now, as I said, we had our water tested just before this well was redrilled and it tested 95.6 milligrams per liter of sodium chloride. Now these water tests, even after the well was drilled, the site supposedly cleaned up, -- they moved a lot of dirt out of there, moved it up to a site on top of the hill to get rid of the contamination -- but every time we had any moisture at all, we had an alarming rise in the salts in the water downstream.

Now, these water tests, the copies which are attached, show concentrations of NaCl up to 61,464 milligrams per liter in the water at the well site, and the levels continued to be of 198 at our place two miles downstream. Now this continued from June, when the problem first came to our attention, clear through December of that

year and still maintain that same level with rises every once in awhile when we had rain. So, to me it seems like the creek wasn't flushing out. It was getting fresh contaminants in from the water as moisture came from above.

Now, figures supplied to us by the Water Quality Bureau say that chloride levels as low as 100 to 150 milligrams per liter are seriously detrimental to alfalfa and similar plants, and this is what we were using the waters of Hay Creek for. It was for our alfalfa fields. So, we could not irrigate. We could not use our water right to irrigate because it would be detrimental to the alfalfa instead of being a blessing to it.

We complained to everybody who would listen, and nothing has been done to address this damage to our farming operation whatsoever. We wrote to Mr. Carney of the exploration company after he had said that they thought the situation had stabilized and there was no need to do more testing or anything else. So, as far as I know, there was no more testing done after December of 1981, although we have a letter here from Mr. Rod Sandahl of April of 1982 asking that they resume testing that spring and continue doing it on a monthly basis. We have had no results of the tests.

Now, we do not wish to deter oil production, but we do insist that we have to have safeguards in place and we

have to have them enforced to protect our land, and our water, and our air in conjunction with oil production.

Thank you for this opportunity.

WILLIAM PETERSEN: My name is William Petersen.

P-E-T-E-R-S-E-N. In your environmental book on page 200, figure 48, on the back side there, you have eight items that we would like to add to, and item number 9 would be the revised permit application that you've recommended. We would like to see a statement in there that has the surface owner was contacted on date such and such. "Item 10: Did surface owner contribute information to questions 1 through 8. Yes or No". We feel the surface owner usually knows where the saline seeps are, springs, and in many cases, where the water table is, and this information should be available to the Gas and Oil Commission when they approve this drilling permit.

The other thing that we've come up with and we believe that, and I'm not sure of this, but somewhere in there I think it said something about one individual, or a small group, could demand an environmental impact statement. In a case such as that, I do think that the local conservation district supervisors should be contacted and discussed with them before it's initiated. Thank you.

MRS. BAKER FINNICUM: Hello. I'm Mrs. Baker Finnicum. We have a problem with pollution in our home

The suggestion for addition of two items to the application form regarding contact with the surface owner are well taken. The Board will seriously consider such an addition.

It should be noted that the draft PEIS and MEPA rules provide that the level of environmental review performed be based on the potential for adverse impact. Under the process envisioned in the draft PEIS, the Board of Oil and Gas Conservation would determine whether or not an EIS should be done. Division staff would have responsibility for conducting checklist reviews and determining whether or not environmental assessments should be prepared. Conservation district supervisors would be good sources of information to assist with assessing impacts and identifying mitigation measures.

The problems experienced by the Finnicums were recognized and considered for the draft PEIS. The discussion of the problems experienced by the Finnicums are summarized as Case Study #2 in Technical Appendix 4, Air Quality.

While the Board sympathizes with the Finnicums' frustration with problems posed by these wells, these comments leave the mistaken impression that nothing has or is being done. This problem has received the continued attention of the Board staff since its discovery and, to our present knowledge, the problems have been corrected.

caused from two wells that are -- the furthest one is 112 feet above us in altitude and the second one, and it lies about two-and-a-half or three miles from our home, and the second one is about, I don't know, three-fourths or a mile southeast of us. Both are a southeast direction up the creek from us, and I think -- I have my information at home. I keep a daily diary, I have for years, but I didn't bring it with -- but I think the furthest well was drilled in -- well, they finished drilling it in December of '86 -- and, I don't know what caused it, but there was a great big blue smoke and it just about killed us off, and this kept up for about two weeks before we finally -- We didn't know who to call or who to ask. We didn't belong to the Land and Mineral Association at the time, and we just got sicker and sicker and we finally got it shut down within about two weeks and it's been so long ago I can't remember how many times during that, in the following year, -- When did we finally go to an Oil and Gas meeting? Was it that year or the next?

MR. FINNICUM: In '87, I believe.

MRS. FINNICUM: I think it was in '87. I should have more records about this, but -- Anyway, the gist of it is that it just keeps coming. Whenever the temperature goes down, -- I don't know. We have it in the summer. We have it in the winter. We never know when it's going to descend

on us. I can't ask my mother to come and stay with me for more than a day. Our grandkids come on the weekend and they even drove through it along the road, which is a mile from the well in either direction, approximately, and got to our place. They were fine when they got there and in three hour's time began to throw up and threw up all night long, and this happened to us twice and I said, "Why jeopardize their lives", and it's just that we can't live this way forever and ever, and Baker's blood pressure for the last year-and-a-half is nothing. Right after we had a big dose of it, it just kept going up and he's tried at least a dozen different kinds of medication and nothing will keep it in control, and he's developing other symptoms that are worse.

Sometimes we'll go for a month. Sometimes we'll go for six weeks when our lives are fine and dandy and we love it because the wind comes from the west and somebody else is getting the stink that belongs to us, namely probably Dick Iverson sitting down on the end there. I don't know. But many times when we travel on the road to Sidney, we go seven miles to the east and then we turn and go south to the township line, and in that area, even at Ann D's in the winter time and past there, up that road going south, and that would be probably, I don't know how far it would be from that well. It would have to be between three and five miles. Three miles? You can smell it strong, and

I cannot believe that that is being controlled properly, that it is not a detriment to our life or a hazard to the way we live. I just cannot believe it.

But the thing of it is with us, it isn't just a one hour or a 15 minute deal. It's all night long when we get it. We attended a meeting here in Sidney, the Legislative Report meeting, last Friday. We came home and the smell, the stench in the yard, you could not believe it. It just choked us up, and we went in our house and everything seemed okay. And sometimes we've had this happen and within maybe two hour's time the wind will switch direction and blow it the other way away from us. So we stuck it out. Then Saturday night we got the same thing again. By Sunday morning, we went to do the neighbor's chores, Bob Tregor, to the west of us, and when we came back the smell was so strong in our yard that we decided we better to go Culbertson for dinner, and by the time we got home at 3:00 in the afternoon, the air had cleared and Baker was sicker than a dog.

I just cannot see this going on forever and ever. It just cannot. We got a dose of it the week before that on a Friday night that lasted all night long. The temperature was 32 below zero. There was no air whatsoever, not one bit of wind, and it was just like it slowly went down the creek until it got to our house and then invaded

the inside of our house. That is no way for anybody to have to live. There's got to be something done. And Baker and I have been more than reasonable. How can we change the way we live? Nobody's even offered to pay even one phone bill as far as our expenses, and for anybody to say, "Well, why didn't you leave and go someplace?", both of us are in our fifties. We never leave home in the winter time, try never to, when it's 30 below zero, say nothing in the middle of the night with no place to go. And why should we have to?

Baker has lived in the house that we live in for 43 years and I see no reason that somebody else should tell us to get out and we should snap our fingers and go.

CONNIE WILSON: Hello. I'm Connie Wilson.

First of all I want to thank Mrs. Finnicum for bringing this again to the attention of the Board of Oil and Gas. This is documented on pages 98 and 99 in the Environmental Impact Statement. However, last November several of us from this area made a trip to Billings to the Board of Oil and Gas and brought the Finnicum case of hydrogen sulphide poisoning to the attention of the Board of Oil and Gas. At that time Slawson Drilling was responsible for the wells and, as a result, the Board of Oil and Gas did shut in these wells and a vapor recovery system was placed on the wells.

Since then the wells have been turned over to a new oil drilling, or a new oil service in oil, I believe it

The reader is referred to the response above regarding hydrogen sulfide problems experienced by the Finnicums.

is. Is that right, Baker?

BAKER FINNICUM: Yes.

CONNIE WILSON: And, you know, the same problems are occurring again. I think if we're going to look at the role of the Board of Oil and Gas, they need to take responsible action, have this case investigated, and whatever means it takes for this to deal with this sour gas, it has to be dealt with immediately and effectively. We cannot look at the cost of the production. We have to look at the cost of human lives and of people's health.

While I'm here I would also like to draw attention to one other of my concerns in this document which is on page 94 where it talks about -- the second paragraph on the right hand column where it talks about "Pipelines used to transport produced water from the producing well to a holding tank or injection well are not currently regulated by the state." Then, "Leaking salt water collection lines buried in sand or gravel can leak for some time without being detected. There are no public records of the location, size, age or type of materials used in salt water collection and disposal systems." This is the only mention of this problem on leaking of salt water collection pipelines. There is no other mention of this that I could find in the document. I think it needs to be somehow looked at again in mitigation and also somewhere on the checklist

itself.

As it goes on to say here, there's no record of, you know, what kind of materials are used in these pipelines, and I think we have a lot of old pipelines and I think they should be closely looked at when we look at the checklist and at different mitigating procedures. That's all I have. Thank you.

SCOTT CURRY: Does anybody else wish to make public comments on the EIS?

RICHARD IVERSON: I'm Richard Iverson from Culbertson, Montana. I live approximately seven or eight miles southeast of the Finnicums, Baker and Ann, and probably two to four miles from the two miles that Ann spoke of earlier.

In going over the oil and gas drilling production draft EIS just briefly this evening, I think that they did a good job of analyzing some of the health hazards that are associated with this hydrogen sulphide. They list Canadian sources and other sources. They also talked about how the United States does not really have an air quality guideline for this, but Montana has been, I guess, with foresight or whatever, set some standards, and just looking at the standards Montana set and the ability that you can still smell these at the level that Montana set, it would seem to me that the guidelines are there as to what we

should be doing, but in the draft EIS it doesn't really address what will happen if they are exceeded other than they will be checked on, and that would be primarily spurred by the fact that somebody called. There's no random checking of oil wells to see if they are emitting these gases other than by somebody complaining, and if somebody does complain, it looks like, basically, they're going to go out and look at them and then determine if we should do something like put on a sensor or whatever, but I don't see any clause in there as far as penalty or anything else that should go on.

I'm not bothered by the gas as much as the Finnicums are, but it's probably because there's quite a ridge of hills that goes between myself and the wells, but often times going to town I can smell this gas along the road in the spot that Ann talks about. It's directly east of the wells and it happens to be when there's a west wind and the air carries it down the draw to this road, and most of the time my wife does the cattle feeding and often times along the creek where we feed she does smell this gas quite a bit. And I can't help but think, not only for the people involved and the livestock, but there must be a terrific amount of wildlife that's affected by this in these low drainages that can't complain about it either.

These trucks that carry the oil from these

The draft PEIS suggests that Memorandum of Understanding could be written to clarify the roles and responsibilities of the Air Quality Bureau and the Board of Oil and Gas Conservation regarding wells containing hydrogen sulfide gas. This issue will be considered by the Board when developing its environmental review process. The reader is referred to Chapters Six and Seven of this final PEIS for additional information.

sites, or the water -- I'm not sure if it's oil or water they're carrying --, but sitting in the livingroom of our house about 250 feet from the county road, you can smell that as plain as day just a few minutes after they've gone by. It's a real terrible smell and I can't imagine what the Finnicums must go through living near an oil well like this, and I'm sure they're not the only ones in Montana nor will they be the only ones in the future that have this problem. I just feel, personally, that something should be done to not only safeguard human safety but the other livestock and animals that would be involved in this. Thank you.

SHERILL HENDERSON: My name is Sherill Henderson. H-E-N-D-E-R-S-O-N, and by kind of an accident I was in Billings for a Board of Oil and Gas hearing and one of the Board members asked me if I was coming to the meeting at Billings. I wasn't prepared, but I did hear the statement there that there had been some 28,000 wells drilled in the state of Montana and there'd never been a problem connected with one of these wells. Well, I'm here to tell you there has been and within a very short range of our farm ranch. I'm going to give you just one instance of a problem.

We live about six miles northwest of Sidney. There are many more I am familiar with, problems, that is, that have resulted in damage to drinking water and

environment from oil well drilling and seismic exploration. Please bear in mind that as custodians of the soil we are interested in preserving our land and water and also are fully aware of the benefits from oil production in the form of taxes paid to all segments of government, jobs produced and, last but not least, royalty income to the producer and to the mineral owner.

I, as well as many other landowners and mineral owners, have attended dozens of meetings, have kept abreast of the development in North Dakota and other states, and try to get the best job done in Montana for everyone concerned.

This is a conference we attended in North Dakota in April of 1985. They are on the problem over there. They are aware of the problem. It says, "Conference on Identifying and Remedying the Effects of Oil Drilling and Drilling Fluids on Soil and Ground Water Sponsored by the Land Reclamation Research Center, Soil Science Department of the North Dakota State University and Mining and Mineral Research Institute of the University of North Dakota."

One or two of our inspectors were at this same meeting. They realize the problem that we have had in Montana, and my only reason for attending this conference was to try to clear up the act, if it could be, so that we could live with it.

We have some very knowledgeable people in the

A copy of these proceedings has been reviewed. Information contained in various papers supports the analysis of water quality and soil contamination problems in the draft PEIS. No new or additional information was found that would require presentation in this final PEIS.

world of oil and gas, and I would like them to put this knowledge to work and save any more disasters like we have experienced in the past. Then, under the above suggestions, let's go ahead and try to increase production, which is so desperately needed, and not operate under the assumption that no safeguards are needed and that there has been no problem in the 28,000 or some odd wells drilled in Montana as stated in other of these meetings held in billings.

This is one case of ruined water well, and there are many others, that I will give.

"The following is a summary of my experience with surface water and shallow well water contamination from oil exploration.

Attached is a plot with oil well locations on 10-8-79 when a Shell well was staked on Gene Iverson's land in Section 15, 23N, R59E. This well is adjacent to my residence. Also attached is an aerial photo showing in more detail the location of the oil well, water wells and house and the direction of surface water flow. Also attached is a letter of my concern to Shell Oil Company from my attorney, prior to drilling the Iverson oil well. Also attached is the chemical analysis of my house water well prior to Shell's drilling and after the water was contaminated. These show a change of NaCl from 20.0 mg/L to 2910 mg/L or 144.8 times as much. Total dissolved solids changed from

The problems with the water well mentioned by Mr. Henderson were considered in the preparation of the draft PEIS. Data regarding this problem is summarized as Desev Site #3 on page 65 in Technical Appendix 2, Water Resources, and in Table 11 on page 91 in the draft PEIS.

The draft PEIS suggests that Memorandum of Understanding could be written to clarify the roles and responsibilities of the Water Quality Bureau and the Board of Oil and Gas Conservation regarding water quality concerns. The reader is referred to chapter Six and Seven of this final PEIS for additional information.

782.2 mg/L to 3734 mg/L or an increase of 20.9 times.

The following is in chronological order of the events that took place before Shell drilled a new well at my house and barn use. We have not yet finally settled with Shell Oil Company, as they have not fully paid for all the damages. They covered approximately 90 percent of the damages.

On or near September 8, 1979, Shell Oil Company obtained a special offset from the Montana Gas and Oil Commission and started the Iverson well, 177 feet north of the proper location. This placed it close to my house and upstream from my well about 300 feet. I assume this offset request was because the location would have fallen on two surface owners, the surface terrain had no bearing on the location.

At this time I took water samples of my well, contacted the State Gas and Oil Commission and Shell Oil Company over the concern I had on my drinking water. Shell's petroleum representative assured me they would line the pit (which they did) and drill the surface hole with fresh water (which they did not, according to the driller on the rig). The open pit was inspected by a Montana Gas and Oil field man and a Shell representative, Rich Porter, over my concern and noted the pit was in the water table which at that time was four to five feet below the surface and in

gravel soils. The heavy lining placed in the pit held the water level constant through December and January after completion of the oil well. The drilling was done in late October and November. In late January the pit was trenched and drained into the gravel soils and surface water, (I have pictures of this), and covered. By mid-February the house water was so salty we could not use it and the plumbing was corroding fast. I contacted Shell Oil representatives Harry Jacobson and Lee Bass. They inspected and tasted my water and agreed it was salty and unfit to drink. 2-27-80 samples were sent to the state's lab for analysis. (Remodelling of the lab delayed testing of the salts until June, 1980.) Shell Oil representatives, Forrest Samuels and Lee Bass, and Boyce Drilling representative, Fred Boyce, inspected the house and discussed replacement of the well, estimate depths, cost and sub-surface water flows. At this time the representative of Shell promised to make "full correction of all damages" soon as Boyce could get there to drill the well. (Estimate of two weeks) The first week of March, Boyce was ready to drill and the Shell representative would not let them.

3-10-80, I contacted Lee Bass about the problem. He promised his boss would be out to see me on Wednesday, 3-12-80. He didn't show or call.

3-18-80, I called John Manning, production

manager, to find out why I was getting the run-around, he referred me back to Lee Bass.

3-18-80, I made contact with Lee Bass, we took water samples to Astro-Chemical Service, LTD. in Williston. Shell head office had required a chemical analysis report.

3-19-80, I contacted my attorney for assistance. He assured me we had an excellent case, we could win, but try to get a settlement out of court.

I contacted Lee Bass when the chemical analysis returned and showed him the results. He couldn't make any promises, this time. I was very demanding at this point, I told Lee if he couldn't convince his boss to replace the well, let me talk to him. The next day Boyce Drilling was contacted to drill a replacement water well.

4-24-80, Boyce Drilling began drilling the well. Shell stopped them at 109 feet to test water. It was not satisfactory for human use so they drilled to 1248 feet foxhill sands and produced a well.

By about May 15 it was piped into the house and barn for use. We went 86 days without useable water.

Shell Oil offered \$5,000 as a cash settlement in March, prior to drilling water well. Shell Oil rep. stated, after completion of the water well, it cost them nearly \$15,000.

At this point I had a well that replaced our

drinking water, but it has enough sodium compounds that it killed much of our garden and apple trees the following summer (1979).

I was advised that there is a state water pollution law, which this contamination would fall under, that would cost offenders \$10,000 a day if proven in a circuit law suit. Also there is a Federal Clean Water Act which offenders, if convicted, would be fined \$500/day of violation. This is a harder suit to win as offenders must be convicted as a criminal act.

In summary, I have water I can live with, but much of my house plumbing is seriously damaged, loss of my productive time to combat Shell's negligence and loss of a good neighbor on trespassing on his cropland during the time of piping water into the house, they would not settle on cash settlement in any amount for these and other minor damages.

Charles H. Lowman Sidney, Montana"

So, I say we need production but we can control it. I have the copy here of the restrictions on drilling permit that will be issued before a well is drilled on federal lands so it's been done. The average landowner doesn't have to be walked on, trampled down. We're not trying to run oil companies out of business, but let's do it in a way we can live with. Thank you.

Comment noted.

DENNIS TRUDELL: My name is Dennis Trudell. The last name is T-R-U-D-E-L-L, president of the Northeast Montana Land and Mineral Owners Association, Incorporated.

On page 181 the draft mentions hauling the pit mud. Then where do you go with it? In the past the mud has been trenched out on the location where it's drilled. We think if the landowner has an acceptable location away from the well site, that should be an option, along with others, including licensed disposal pits in North Dakota right across the Montana State line.

On page 95 the trenching of reserve pits is mentioned. We think that should be discontinued except in cases where soil will not allow leaching to occur and if the landowner agrees.

On page 195, H2S is talked about and we think that a report should be submitted to the Board of Oil and Gas Conservation on the H2S problems when production begins.

A few more landowner concerns: Flood plains. We think that drilling on identifiable flood plains should be mentioned and the season of the year makes a big difference. In the winter time the run-off isn't as big a problem as the spring and summer. Dykes should be required on drilling sites so that we don't have contamination down the coulees.

The Board will be considering waste disposal issues as it considers rules topics. The options presented by these comments will be considered at that time.

The Board is considering the establishment of a rule that would require gas analysis data be collected. The reader is referred to Chapter Seven of this final PEIS.

The Board will consider these topics as it develops a permit review process and any rules deemed necessary.

Landowners should receive a copy of the drilling permit application so they can check responses as related to roads, site and where the reserve pits are to be located.

Applications for a permit to drill have no questions concerning pit disposable, soil type, depth of water table. These things should be part of the application. Thank you.

SCOTT CURREY: Is there anyone else that wishes to give comment tonight?

(Whereupon, there was no response.)

SCOTT CURREY: All right. Then this public hearing is now at an end. Thank you for coming.

JERRY BRANCH:

I'm Jerry Branch. I'm a geologist. I've drilled for oil and gas for about 30 years in the state of Montana. Just estimating, I'd say during that 30 years I've probably drilled maybe 200 wells. Out of that 200 wells I can only remember having some kind of an environmental problem with one well. We had plugged the well and moved off. It was non-commercial. Several weeks later the farmer called me and said, "Well, my wheat is down around the well," and we went out and looked, and sure enough there was a blow leak around the well, and had a rig around it in a day or so and fixed it. We put the plug back in properly and paid the bill for doing it. We didn't need anybody's help.

Drilling started in Montana in 1950. That's been 74 years of drilling. During that period of time there's been approximately 30,000 wells drilled in the state of Montana. During this period the drilling industry has been relatively clean. There's been few major environmental problems. Also the oil and gas producing industry has a record of reliability in Montana.

During the last arctic front that came through your lights went out but your gas didn't.

I have a question as to why we had this environmental draft put on it. You compare us to other industries. We are not putting arsenic in streams. We're

Some of the statements and opinions by Mr. Branch cover a number of issues unrelated to the purpose of the draft PEIS. The following responses will be made to clarify the requirements of Senate Bill 184 and the contents of the draft PEIS.

not putting pesticides in the ground so you can't eat a duck or goose. We didn't have an explosion in Helena. We didn't dump 104 boxcars of wheat on the edge of Glacier Park.

I would suggest if the state has to write environmental impact statements they ought to look somewhere else and write them for other industries.

Equally important, I question the timing of this report. The oil and gas industry is pretty dissipated in the last eight years. The activity in the oil and gas field has dropped 75 percent. That's not a very blank statement when you the results that that has on the state.

Seventy-five percent of the service companies have gone out of business. 80,000 jobs have been lost. Approximately 30,000 people have left the state. I have good friends that have left the state. State and county tax collections have decreased radically. For example, in Toole and Glacier Counties the oil and gas base used to be 70 to 80 percent of the total taxes. I know that's hard to believe, but that's what it was. Now -- I maybe corrected by our Toole County Commissioner here, but I think those taxes have been cut in half. This is not a situation where the State should be playing games with an industry. This is a situation where the state should be encouraging this industry.

I also question the competency of this report. The

Mr. Branch criticizes the draft PEIS because the list of preparers and members of the Advisory council did not contain enough members representing the oil and gas industry and that the industry was not able to become involved. These comments are not based on fact. A number of opportunities to become involved were provided to industry through the notices of meetings and copies of draft material sent to the Montana Oil and Gas Association and the Montana Petroleum Association. It should be noted that except in a few instances these opportunities were not taken. Mr. Branch's criticism of the technical competence of the Advisory Council and Interagency Technical Committee is conjecture.

folks who drill for oil and gas in the state of Montana did not have an opportunity to properly involve themselves in the drafting of this report. Take a look at the project directors. Out of ten project directors there is one that can tell a drilling rig from a combine. The other nine I don't think could. Likewise, of the 14 people responsible for writing this report, two have got marginal knowledge as far as drilling operations are concerned in the field. The educational background of the people who prepared the report -- I'm not knocking their specific fields or anything, but they're not applicable to oil and gas drilling in the field. How about the degrees like architecture, botany, and biology. Basket weaving wasn't included.

I would also question the tone of the report. The word "impact" and buzzwords, especially the word "impact," I think it's in every paragraph of the report. Have you ever heard of "fugitive dust." Drilling rigs give off fugitive dust. I don't know. I haven't got the research available to me. I think that's part of the same stuff that follows tractors in the field and follows you down the road when you're driving a county road. Why it's brought out here the way it is, I don't know.

Another point is made on the noise associated with drilling. It's maybe loud to you, but yet when you compare it to the noise of a train or the noise of a train whistle it

The Board will make changes to the draft PEIS where it feels the tone is negative.

The reason for including a discussion of many items such as fugitive dust and noise in the PEIS was to show that such problems are rarely concerns for the individual well. As documented in the PEIS, the need to do additional analysis for individual wells, except in rare circumstances, would be eliminated.

is not as loud. The fact is it's probably not as loud as your kids' stereo.

Also there are obvious deletions in the report that I'd like to question. One is that when a hole is drilled in the ground through these horizons, these horizons don't know what reason that was drilled for; whether this was drilled for oil, gas, or water. If we're going to have some stringent requirements on oil and gas drilling, why can you go out and drill a water well and not even set surface casing? In the oil industry we've got a time-tested system for drilling wells. You set surface casing to protect the shallow waters. You drill the hole the potential depth. If it's a well you're going to complete, you run casing and cement it properly. No two formations are in connection with each other. If the well is plugged and abandoned, you set plugs, and the operator talks to the Oil and Gas Commission, and the fundamentals are very consistent, and plugs are set between each and every horizon, and there's no comingling of fluids and gas.

If you want to drill a water well you don't even get a permit. You hire a rig. You get a hole and do it. You don't set a surface casing or anything. I think there are instances in my area where water wells have comingled with surface waters, and I think in some cases some of our gas reservoirs have been badly damaged by water wells.

The lack of discussion about water well drilling is not a concern for this draft PEIS since the subject here is oil and gas wells and not water wells. It should be noted that the drilling of water wells is subject to various license requirements and well construction standards established by the Board of Water Well Contractors. The purpose of Senate Bill 184 is to establish a drill permit review process for use by the Board of Oil and Gas Conservation.

Another deletion in the report is the assumption of complete authority by the state, but where does their liability lie? They're getting in a position here on this draft report where they're going to be telling the farmer what he can do with his land, and it's going to be imposing on personal property rights pretty heavily.

They're also going to take on liability on the oil and gas operator himself. If they tell me I have to do something a certain way and it fails because they don't know, but I did, I think that they'd be liable, and I think the State has to consider this possibility.

When you come on and be critical of everything, which I am on this, you have to make some suggestions of what to do. This Draft Environmental Statement has got a use. I would suggest putting it in every rest stop along the highways in Montana and using it a sheet at a time.

KNEELON TEAGUE:

My name is Kneelon Teague. I'm a Certified Professional Geologist, Certified Petroleum Geologist, and President of Teague Geological Incorporated, which is located at 147 Main Street in Shelby, Montana. I've been a Montana geologist for my entire professional career, which spans some 33 years within this state. My principal expertise is in the field of oil and gas, but I also do considerable work in the

Mr. Branch incorrectly makes the assumption of greater implied authority and therefore increased liability through the draft PEIS. Somehow, this all would then result in infringement on private property rights. These assertions are opinions and are not correct. The reader is referred to the responses to the Cenex, Exxon, and Chevron letters.

The Board notes that depending on how this suggestion were put to practical use, it could have the effect of rubbing many people the wrong way.

fields of hydrogeology and environmental geology.

I have very carefully read the Programmatic Environmental Impact Statement on Oil and Gas Drilling and Production in Montana, draft EIS, from cover to cover. I fail to find any problem addressed in this draft that isn't directly covered by the existing rules and regulations of the Montana Oil and Gas Commission.

One big difference, however, is that the proposed changes will practically, in all cases, prolong and complicate the current simple permitting procedure. It will increase the cost of both the applicant and the State to process a drilling permit.

According to the draft EIS, it may be necessary to hire additional employees to process applications for permits. It will certainly costs applicants more to furnish the additional data as proposed in the draft EIS.

In 1987, the last complete available statistical year, oil production dropped to 23,610,420 barrels of oil in Montana. This is the smallest quantity of oil produced in this state in 31 years. When the 1988 statistics are in, it is anticipated that they will be worse than 1987. Unstable oil prices, over taxation, and over regulation have effectively brought the Montana oil and gas industry to its knees. What we need is help, not increased regulation.

In the draft EIS some of the items addressed are

Mr. Teague objects to the conclusions reached and alternatives discussed in the draft PEIS because he personally believes that no problems now exist or potentially could exist as a result of drilling or production, despite his stated agreement with most of the contents of the draft PEIS. These statements are his opinions but cannot be supported by facts or analysis known to the preparers of the draft PEIS.

practically ludicrous. The two most frequently used words in the entire manuscript are "potential" and "possible." These words are usually used in the text to indicate problems in the industry; problems that the statistical portion of the text indicates to be rare, remote or practically non-existent. However, I do suppose it is possible for a satellite in space to break up and potentially strike me in Shelby, Montana, unless there's some regulation on the books that states it can't do this.

The first four charts of the draft EIS are probably the best statistical and informational data that's been compiled on drilling and production in Montana. Chapter five, which is the nitty-gritty of the whole thing, is sickening. It apparently was prepared by neophytes who know nothing about the oil industry or neophytes who care nothing about the oil industry.

Chapter five is written on very simplistic junior high interest level. It rambles in generalities that can be interpreted in any of many ways. Example: Table number 42 on page 202, entitled "Sensitive Environmental Features and Constraints for Oil and Gas Wells," lists a multitude of possible problems under the following titles: geology, soils, water quality, air quality, wildlife/fisheries, land use, recreation and aesthetics, and culture/historic. There's an asterisk at the top of this Table which sends you

to the asterisk at the bottom of the Table, which tells you the following: "Definition of sensitive environmental features and constraints may need to be developed. Use of sources from published information or available from other agencies may ease the task of determining the presence or absence of these factors." What they're telling us is that it cannot even define the problem, but they can develop a definition if they read enough textbooks.

The theory here seems to be that with all the different categorization surely there must be something to regulate. The basic theme seems to be the primary idea for the entire draft EIS.

It would be my recommendation that the Board of Oil and Gas reject this draft EIS in its entirety and redraft a workable, fair set of standards to comply with the statutes as directed by the Legislature.

In other words, if it isn't broke, don't fix it.

KEN FINSTAD:

My name is Ken Finstad. I've been involved in oil and gas in Montana for about 22 years. I didn't come with a prepared statement. I concur with Mr. Teague and Mr. Branch, but I just wanted to go over briefly page 200 in the draft and go over this point by point from the top and try and point out what this is going to do to us for drilling wells

The practical effect of not adopting the draft PEIS would result in substantially more delays in permit approval and probably greater regulation of the oil and gas industry than is now suggested in the draft PEIS.

The Board is committed to adoption of an environmental review process that is practical, reasoned, and provides required environmental protection measures when and where needed. The uncertainty surrounding how the oil and gas industry can comply with state laws needs to be resolved so that the state can proceed with the development of its oil and gas resources through an environmentally sound and reasoned approach.

in our area, basically the shallow wells that we're interested in.

They're saying, "Attach a topographic map," and they want us to show any access roads, the county roads, established roads, nearest fresh water streams, lakes, ponds, et cetera. If we happen to get a good winter, I guess we redscribe all the maps. I don't know where we go.

"Are there any water wells within a half a mile of the location?" Who supplies all this information? Where do we get it? If we don't point out a water well and a water well is contaminated, are we guilty?

Number three, they want a plan view of the location, which double and triples the expense of a survey and slows it down.

Number four, they are asking if the reserve pit should be lined, and it says, if not, what type of soil and approximate depth to the water table. Who decides where the water table is at? Is that up to us to find the water table and make the determination?

And soil type; do we find a soil map and accept that, or are we responsible for the soil types?

Dwellings, schools, recreation areas within one mile. We have to research all of those items, and I can't see anything but a great big logjam to this thing.

Mr. Finstad raises concerns about the usefulness and practicality of collecting information suggested for the revised drill permit application. The Board will be addressing these concerns as it reviews the drill permit application form. The Board will seek only information required to assess impacts and will develop methods and procedures to allow practical problems to be addressed on a case-by-case basis.

DAN MITCHELL:

My name is Dan Mitchell. I'm from Cut Bank, Montana, and Kevin, Montana.

God, I feel like a grandpa up here. I started in the oil field at 14, and I'm 60 years old, and I've been there 46 years, and I agree with what Jerry Branch had to say and what Mr. Teague had to say, and what Ken Finstad had to say, especially what Kneelon had to say: if you've got a wheel running, why fix it.

In all those years I've never seen an environmental impact, so to speak, surrounding a drilling operation. I can show you locations we've tried to find with a metal detector trying to find pipe in the hole that have grown over and disappeared.

In my experience I've had two blowouts, one with a gas well -- three blowouts with a gas well that we controlled without saving the rig, and another time we had an oil well blow out. Today I can take you to those locations. There was nothing pushed on us by the state or feds. You can't hardly find those locations, and, in fact, one farmer up there -- there was two cousins that were farming next door to each other, and some environmentalist talked to this one farmer and said, you dig a great big pit and have them put all the mud from all the locations in that pit, and he did. The other cousin spread that on the ground and maybe half an

While Mr. Mitchell's opinions may be shared by his friends and neighbors, not everyone has the same view regarding problems associated with oil and gas development. It is not possible in the abstract to discuss either the problems or lack of problems with oil and gas development across Montana. The process suggested in the draft EIS would allow a case-by-case look at whether or not problems are likely to exist. The Board is committed to development of practical rules and guidelines to address problems and to do so with the assistance of and input from industry.

inch thick. Two years later I go up there, and the one farmer's son took me out and showed me these locations that we'd spread. All the cows are eating there because the grass is growing better because there is fertilizer in the mud. The other guy has got a pit that will be there 1,000 years from now, and that was the advice of the so-called experts.

So I don't know where this great book of knowledge come from. I'm like Kneelon or Jerry who said, where were the competent people that are experienced in the oil and gas industry for input into this set of rules.

I don't think we need them. I mean, like I say, if the wheel runs, leave it alone. We've done all these years. Montana don't have a problem with environmental impact on oil and gas. That's all I have to say.

DOUG ABELIN:

I'm Doug Abelin, and I'm a representative of the Montana Oil and Gas Association, and I think that I probably had as much to do as anybody as far as instigating this study. I don't know if I should take credit for that or not.

I think that the people who did it put a lot of time in it. I think a point that was taken the other day that I heard Mr. Nelson say is very appropriate, and that is that they don't have to take this whole study. I'm not sure they have to take any of it.

Comment noted. Please refer to response above.

I think it was a good study, but I think that what we have is proven and workable, and we should try to live with that. If there's something in here that we've gained, use it, but, as a entirety, it just doesn't seem apparent that it's necessary. Thank you.

MR. CURREY: Is there anyone else who wishes to make any comments? If not, we'll close the hearing.

PATRICK MONTALBAN:

My name is Patrick Montalban; for the record, vice president of exploration and production for MRS Exploration at the Cut Bank, Montana office, with offices in Billings, Montana, and Calgary, Alberta.

I can't believe I'm nervous, Teague, but I'm actually nervous in front of all these people. First of all, thank you for the opportunity to say a few comments here.

First off, I think that everyone should know that it's very important to most oil and gas people that the environment is as much of our concern as anyone else's, and we want to protect the environment in the state of Montana as much as anyone else, the majestic mountains and the great trout fishing and so on and so forth, but it's time that the industry and the environmentalists start getting along together as far as the drilling permits and the procedure

While Mr. Montalban does not make statements or comments regarding the draft PEIS, the Board believes that the spirit of cooperation as suggested here would benefit the efforts required to implement a practical and reasoned environmentally sound drill permit review process.

that we have to follow with these wells.

Most of our drilling in our area is done into a field that's already been developed for 50 to 60 years, and I wholeheartedly agree with these gentlemen; if it's worked for 50 or 60 years, I still don't see why we have to change anything now.

I believe our biggest concern right now -- and I think that most geologists, which I'm a petroleum geologist -- is that there's a vast amount of reserves to be discovered on the overthrust belt, and to date there has been no major discoveries found in the state of Montana besides Black Leaf Canyon.

I think if the industry tried to get along a little bit better with the environmentalists and follow the rules of, shall we say, the Commission in developing, I guess it would be, first drilling and exploring, then putting on production and developing the overthrust belt, I think that we have a vast amount of reserves to discover up there. We can't have the reserves that have been discovered in Alberta and the northern half of Montana and Wyoming in the southern half and obviously not have them in Montana.

We not only have the state to be concerned with here, but we really also have some of the national security to be concerned with, because we really have the amount of reserves a lot of people feel to be discovered up on the

overthrust belt, and the only thing that this great little program is going to do is prevent drilling up in the overthrust belt, and we need the attitude in the state of Montana to improve, not to get worse, such as has been in the last eight years under the Schwinden administration.

I think that we've made a great step in the future of the state of Montana by voting in Conrad Burns and Stan Stephens, and I firmly believe that if we follow the road of the Republicans and the people that we put in that office, that will allow us to get up into the overthrust belt and start developing some of these reserves that need to be developed.

And I really believe, with the gentlemen that already spoke, that we've got an operation that's working well now, and I think that we should continue with it, and, if anything we can do right now, it is try to improve the attitudes toward other companies to come into the state of Montana and develop and start drilling and bringing money into the state, because that's what we need. We don't need a bunch of bureaucracy and paperwork for these major oil companies to come in and try to develop and find major reserves that we're going to drastically change the tax base in this state, but we need them to have an open arm, an open hand with the Commission and the politicians in this State to say it's time to change a little heart here and say we're

ready to welcome the majors to come in and develop this overthrust belt, and that's really what we need. Thank you.

BILL HEDGLIN:

My name is Bill Hedglin. I'm a petroleum geologist and do exploration for Croft Petroleum Company in Cut Bank.

First of all, I would like to say I wholeheartedly agree with the previous speakers. I found this draft to be filled with inuendo, and Kneelon said a lot of if's, and's and possibilities, and that sort of thing.

To elaborate a little bit on what Pat Montalban just said concerning the overthrust and how this could apply to us further out east here, there is an ongoing EIS interagency review going on in the Badger-Two Medicine area near East Glacier. This was started in 1986. The initial target date for the EIS to be completed was middle to late 1987. That EIS is still going on.

I have gotten various correspondence from the Forest Service attempting to justify this. One of their problems was they could not get their computer program properly fixed up to assimilate all the data that's coming in. That's a logistical problem. It has nothing to do with the drilling or environment.

The last letter I got from them stated the EIS was being held up because they had all of their people out on

Mr. Hedglin's comments present a number of concerns not directly related to the draft PEIS or are problems outside the control of the Board. These comments imply that similar problems can be expected from any environmental review process adopted by the Board. The comments may express personal concerns but are contrary to conclusions reached in the draft PEIS. These comments seem to ignore the findings of the draft PEIS--not all wells will have the same impacts and that wells in environmentally sensitive areas will require more analysis before approval is given.

firelines last year. Again, that's not an oil industry problem. It indicates that anytime you have a level two or level three review, as is stated in this book and you go to an interagency review situation, these people, first of all, are not knowledgeable to what we do, and, second, the oil industry is not going to be their priority. If something else comes up, they're going to put us on the back shelf. So I see a year or two or three year delays on some of the projects, being realistic. I don't see the 10 to 30 days, as mentioned in here for level two, or a six month to a year on a level three; in my experience that just isn't the case. That's highly unlikely.

I think chapter five stinks. Thank you.

GEORGE CAMPANELLA:

My name is George Campanella. I'm a Certified Public Accountant, but I've been involved in the oil and gas business for probably 25 years, because I really love it.

I do not believe that we need any change in the way we permit wells. As a CPA -- and I'm sure all of you gentlemen will understand -- a lot of the exploration work that's done in the United States of America is tax motivated. It's driven by income tax aspects. Invariably these aspects seem to work toward the end of a year.

A group of guys will get together and decide that

Companies that drill oil and gas wells do not do so haphazardly or rashly just to spend money that would otherwise be paid as income taxes. Thus, most companies who plan to drill oil and gas prospects should be able to incorporate reasonably foreseeable permit approval requirements into the planning process. Most companies planning the drilling of an oil or gas well would not be adversely affected particularly by the short period envisioned for a checklist review process of the type suggested in the draft PEIS for the majority of drilling projects.

they want to go out and explore for oil and gas, and the reason they're going to do it late in the year is because under the existing tax laws that have been in our country for years and years there are certain advantages that you get taxwise by drilling.

Now, as I said, invariably these happen toward the end of a year when people discover that they are going to have a large tax impact and they want to mitigate that impact if possible, and I can't see that a long, drawn out application process is going to do anything for the state of Montana with respect to drilling, because most of these things, like I say, happen in the last 15 days of December each year, and, if you can't get your permit in then, that money is going to go by the wayside, and that prospect is not going to get drilled. So I don't think we need a change either.

UNIDENTIFIED PERSON: I really don't have a question or comment, but could Kevin and Jim tell us where we go from here, or you as the hearings examiner, just explain exactly what the process of this thing is.

MR. CURREY: I'll make a few comments on that after there's any other comments to be made. Does anyone else have any comments to be made?

CARL FIELD:

My name is Carl Field. I live near Choteau, Montana. I've lived there about 40 years, and I'm in the real estate business and land management business and oil and gas land business to some extent for a long period of time, and I just want to make two short points, one of which is there have been an awful lot of dry holes drilled in Teton County, and I defy most people who don't know where those wells are to find those places. On plowed ground it's easier to find than if it is not on plowed ground, because usually the grass grows better after they've restored than it did before, and the other one is we're in competition in the state of Montana for money from industry, to do exploration in Montana, with many other states, and every time that we pass laws or consider passing laws that involve a lot of red tape and bureaucracy, which this whole thing does, we're just digging a hole for ourselves economically, because people that want to spend money from out of state are deterred from doing so. That's all I have to say.

MR. CURREY: Does anyone else wish to speak?

Okay, I'll field the question just real briefly, and I haven't been involved in the EIS process. My part in this is to conduct the hearings, take the comments, draft a report, and submit that report to the Board of Oil and Gas

Comment noted.

Conservation.

Under the public announcement or the public notice that was published that announced this meeting and the other two meetings that have been held in the state -- this is the third meeting; there was one in Billings a couple of weeks ago, and there was one in Sidney last week -- comment is allowed until March 31st, and I mentioned earlier the address of that. If you have other written comments that you wish to make on the report, you can submit those comments by March 31st.

According to Senate Bill 184, at that time the Governor's office -- and the Governor's office is the governmental entity that is responsible for this EIS process -- then is to take those comments and incorporate them, not necessarily accept them, but incorporate them into a final EIS.

I'm going to read now from Senate Bill 184. At that point apparently, according to the law that was passed by the Legislature in 1987, the Governor shall forward the completed draft programmatic statements to the Board of Oil and Gas Conservation for hearing pursuant to the provisions of the Montana Administrative Procedure Act. That's the process we're going through right now.

Following completion of a final programmatic statement, the Governor shall forward the statement to the

Board for adoption and use in the issuance of permits to drill for oil and gas. That's what the Legislature has required this EIS be used for, and, respectively, how that is to be implemented, would be up to the Board would be my guess.

If there are no further comments --

UNIDENTIFIED PERSON: Does the Board have to accept this? Can the Board choose to ignore it?

MR. CURREY: All I'm going to say is I read what the statute calls for, and it would be interpretation on my part to go beyond that. So I guess that's pretty much up to the Board.

MR. NELSON: Can I respond to that?

MR. CURREY: Sure. Why don't you please come up and identify yourself.

JIM NELSON:

Jim Nelson, Chairman of the board of the Oil and Gas Commission. To answer your question specifically, as the Hearing Examiner pointed out, what will happen from here on out -- This is the last public hearing that we'll have -- The

Board is required to incorporate and respond to the comments that have been made at the public hearings and the written comments which will be made.

Following that ultimately the authority as to whether the Board adopts this or does not adopt it or in which form it's adopted is up to the Board. Of course, the Board has not had any meetings amongst itself to do that. In fact, we have had a brand new board, essentially. We've got four new members on the Board, so we've got a majority of the Board that's brand new, and I'm sure those gentlemen have not had time to familiarize themselves with the EIS or get up to speed on it.

As it stands now, come June 30th we either have to adopt an EIS in some form, whether it's this form or some other form, we have to adopt an EIS that complies with Senate Bill 184. Alternatively, if we do not, then come July 1st we lose our exemption from MEPA, and what that means is that drilling permits that are issued after that will be subject to the requirements of the Montana Environmental Protection Act.

As you probably know, there is presently pending in the Legislature a bill right now by Senator Tom Keating, Senate Bill 201, which has passed the Senate and which will be heard in the House on Friday afternoon, which would, if passed, extend the exemption from MEPA for some period of

time. Senator Keating's legislation proposes two years. In what form that will be adopted, if it is adopted at all, I don't know, but the extension, come July 1st, either could end or, if Senator Keating's bill is adopted, it could be extended some time past that. If it is extended, the purpose of the extension would be to allow the Board to hopefully do a better job on the EIS if we have more time to do that, and that would certainly be the Board's intention, to use that time to do that. Does that answer your question?

UNIDENTIFIED PERSON: You said, Jim, that the Board would take these hearings or the summary of the hearings. I thought that was still in the hands of the advisory and technical committee.

MR. NELSON: Kevin, correct me if I'm wrong here. Technically, I think at this point in time it has been submitted to the Board, and we're going through the public hearing process now. That's what these public hearings are for. So it's in the Board's lap at this point in time.

If there are extensive -- or not extensive -- revisions that are going to be made to the EIS, probably those will be made with the input from the technical committee and advisory council, I would assume.

Am I correct in that, Kevin?

MR. HART: Yes.

MR. CURREY: Does anyone else wish to comment on the draft EIS? If not, this public hearing is concluded and thank you all for coming.

* * *

CHAPTER FIVE

ADDITIONAL INFORMATION SUPPLEMENTING THE DRAFT PEIS

This chapter presents additional information to clarify the analysis contained in the draft PEIS. New information that was not available when the draft was prepared is also

presented. Some information in this chapter was added to respond to comments on the draft PEIS.

DRINKING WATER STANDARDS

The draft PEIS contained a discussion and listing of standards established for public drinking water supplies. These standards have been adopted by the Department of Health and Environmental Sciences to protect groundwater from degradation. Montana's standards are adapted from standards established by EPA under changes made through the 1986 amendments to the Federal Safe Drinking Water Act. This law requires EPA to establish and update as necessary "maximum contaminant levels" (MCLs) for public water supply systems. Montana periodically adopts or revises MCLs under its public water supply regulations (16.20.201 through 206 ARM).

The 1986 amendments to the Safe Drinking Water Act contained a schedule and specific time frame that requires EPA to calculate MCLs for a variety of contaminants that previously did not have an established limit. The new law

specifies 83 water contaminants for which EPA will establish MCLs. EPA is in the process of establishing the MCL limits under the requirement established by the 1986 amendments. As a result of this process, the list of MCLs periodically changes as EPA establishes new MCLs and revises existing MCLs as necessary to protect public health.

There is a period of time between adoption of a federal standard by EPA and the subsequent adoption of these standards by Montana. This period can vary from 1 to 3 years. For example, in January 1989, EPA established an MCL of 5.0 parts per billion (ppb) for benzene, a common carcinogen found in gasoline. Montana expects to adopt this MCL within the next 6 to 8 months. MCLs adopted by Montana and current MCLs established by EPA are shown in the accompanying table. This table should replace Table 5 found on page 80 of the draft PEIS.

CHANGES IN STATE OIL AND GAS LEASES

The 1989 Legislature passed two bills that changed several items in oil and gas leases on state-owned lands. The following discussion supplements the discussion of state leasing found in Chapter Three on pages 45 and 46 of the draft PEIS.

House Bill 133 changed the manner in which State of Montana oil and gas leases are to be issued after July 1, 1989. Primarily, HB 133 removes the requirement that the lessee pay annual rental fees of \$1.50 per acre when oil or gas is being produced upon the lease tract. Moreover, annual rental fees paid in any year in which production commences from the state lease are credited against any royalty due the state in that year. For State of Montana oil and gas leases issued after July 1, 1989, these changes will result in State lease terms being much the same as those customarily found in leases offered on private lands.

Consistent with the principle that state leases should include terms similar to those found in private leases, HB 133 by implication allows the state to begin charging oil and gas lessees for surface damages caused by exploratory opera-

tions upon the lease tract.

HB 133 provides a mechanism for either the lessee or state to terminate the lease. If a lease is terminated, the State retains the right to seek damages from the former lessee for the failure to protect the state-owned lease from drainage or to pay a compensatory royalty.

HB 133 also changed the dry-hole clause of state leases. The new law allows delay drilling penalties to be paid in lieu of drilling as a way to continue a lease through its primary terms, so long as payments are continued and the lease is protected against drainage.

House Bill 327 allows the Board of Land Commissioners of the State of Montana to grant reasonable extensions of the primary term of a State of Montana oil and gas lease where the lessee shows that exploration, development, or operation of the lease has been directly or indirectly prevented, or when possible litigation threatens substantial economic loss. This statute became effective upon passage and applies to all State of Montana oil and gas leases.

Table 5. Drinking Water Standards for Public Water Supplies*

PRIMARY STANDARDS**

<u>Contaminant</u>	<u>Maximum Contaminant Levels (mg/l) (Specified in Federal Standards)</u>	<u>Montana Standards (mg/l)</u>
Arsenic	0.05	0.05
Barium	1.0	1.0
Cadmium	0.010	0.010
Chromium	0.05	0.05
Lead	0.05	0.05
Mercury	0.002	0.002
Nitrate as N	10.00	10.00
Selenium	0.01	0.01
Silver	0.05	0.05
Fluoride	4.0	2.4
Endrine	0.0002	0.0002
Lindane	0.004	0.004
Methoxychlor	0.1	0.1
Toxaphene	0.005	0.005
2, 4-D	0.1	0.1
2,4,5-TP Silvex	0.01	0.01
Total Trihalomethanes	0.1	0.1
Benzene	0.005	—
Vinyl Chloride	0.002	—
Carbon Tetrachloride	0.005	—
1,2-Dichloroethane	0.005	—
Trichloroethylene	0.005	—
1,1-Dichloroethylene	0.007	—
1,1,1-Trichloroethane	0.20	—
para-Dichlorobenzene	0.075	—
Coliform Bacteria	None	—

SECONDARY STANDARDS***

<u>Contaminant</u>	<u>Federal Recommended Maximum Contaminant Levels (mg/l)</u>	<u>Montana Standards (mg/l)</u>
Chloride	250.0	250.0
Copper	1.0	1.0
Iron	0.3	0.3
Manganese	0.05	0.05
pH	6.5 - 8.5 Std. Units	same
Sulfate	250.0	250.0
Zinc	5.0	5.0
Total Dissolved Solids	500.0	500.9

* Table does not include MCLs for radiological or microbiological contaminants.

** Primary standards are established to protect human health and define maximum permissible concentrations for each listed contaminant.

***Secondary standards are developed to provide acceptable aesthetic and taste characteristics in drinking water. Recommended concentration limits have been established for the listed contaminant.

Source: Title 16, Chapter 20, Subchapter 2, Administrative Rules of Montana.

CHANGES IN WELL BONDING REQUIREMENTS

The 1989 Montana Legislature's passage of HB 143 altered the Board of Oil and Gas Conservation's bonding requirements for oil and gas well drilling and production from that described in the draft PEIS. The legislation establishes a damage mitigation account to be funded (beginning in 1991) with an allocation of \$50,000 from the Resource Indemnity Trust. Current funding in the account comes from bond default funds collected by the Board; the bond release fee provided in the bill would also be deposited in the damage mitigation account.

As noted in the draft PEIS, the Board rules establish a \$5,000 bond for a single well and \$10,000 for two or more wells. The new legislation contains a provision that upon payment of a \$125 bond release fee, an operator may request

that a well drilled after June 30, 1989, be removed from his bond, or his bond be released (if the bond is for the single well) if the well is producing oil or gas in commercial quantities and the production is subject to the Resource Indemnity Trust tax. In essence, the \$5,000 single well and \$10,000 multi-well bonds become drilling bonds, subject to release if production is obtained. As in the past, bonds also can be released upon proper well plugging and abandonment.

The same bill gives the Board the authority to file a lien against oil and gas operators who fail to properly plug and abandon their wells. The Board may file a lien against the personal assets of individual corporate principals if the corporation does not have assets in excess of \$250,000.

EXPLORATION AND PRODUCTION WASTE DISPOSAL STUDY

The draft PEIS reported that EPA had recently completed a study on oil and gas drilling and production wastes. This study recommended and Congress agreed that such wastes not be regulated as hazardous wastes under federal hazardous waste management laws. The study also indicated that proper disposal of these wastes was necessary.

Since publication of the draft PEIS, EPA has funded work by the Interstate Oil Compact Commission (IOCC) to conduct additional study on the waste disposal issue. Currently, IOCC's Council on Regulatory Needs is conducting a 2-year study of exploration and production waste management practices and issues. The purpose of the study is to assist in the development of comprehensive, cost-effective standards and regulations pertaining to oil and gas exploration and production wastes. These regulations would be intended to achieve an adequate level of environmental protection that could be effectively implemented by state and federal regulatory authorities.

The IOCC's efforts are designed to:

- establish recommended criteria and guidelines for proper disposal of exploration and production wastes;
- use criteria to identify and evaluate gaps in existing state regulation of these wastes;
- identify potential improvements to prevent state regulation of these wastes; and
- report on Council findings by December, 1990

The Council on Regulatory Needs is composed of representatives of state oil and gas agencies, state environmental agencies, federal agencies, environmental groups, and industry. The Council is co-chaired by Governor George Sinner (North Dakota) and Governor Garrey Carruthers (New Mexico). Following completion of the study, IOCC is expected to provide its member states with model rules to address exploration and production waste management issues.

OIL AND GAS WELL PIPELINE PROBLEMS

Comments at the Sidney public meeting indicated that the draft PEIS contained inadequate analysis of impacts from leaks in oil and gas flow lines and collector pipelines. The analysis volume of the draft PEIS and the water quality portion of the Technical Appendix volume present some discussion of impacts associated with pipelines, including reports of spills and leaks. The majority of these leaks were associated with saltwater injection lines.

In response to comments, additional review was conducted to determine the potential for problems from flow lines and collector lines. No additional studies beyond those reported in the draft PEIS were discovered regarding this

problem in Montana. Literature was reviewed regarding potential problems resulting from abandoned wells, including improperly plugged and abandoned wells and those temporarily or indefinitely shut-in for economic or other reasons (University of Oklahoma 1984).

Several factors may contribute to the potential for problems with oil or gas pipelines. Oil and gas pipelines in this context include crude oil collection lines and saltwater flow lines and injection lines. The factors which may contribute to problems include the location of pipelines, the chemical characteristics of the fluid, and pipeline age and material. The significance of surface and subsurface impacts from leaks in either high or low pressure pipelines is deter-

mined by the size of the leak or spill, the length of time that the leak goes undetected, the chemical characteristics of the leaked fluid, and the soils and subsurface conditions in the area of the leak. The review of literature conducted in response to this comment indicated that the draft PEIS adequately describes the potential effects of leaks on soil and water, wildlife, vegetation, and land productivity.

The comments also raised questions about the lack of discussion regarding identification and enforcement meas-

ures to address the problems associated with pipeline leaks. The draft PEIS states that regulation of oil and gas pipelines does not clearly fall within the jurisdiction of the Board or any other agency. The draft also acknowledges that the potential for impacts does exist. However, there is not enough information to determine clearly the extent of the leakage problems from flow- and collector lines. A more in-depth analysis probably needs to be done, but this effort is outside the scope of this PEIS.

PUBLIC NOTICE AND PARTICIPATION REQUIREMENTS FOR PERMITS TO DRILL

In response to findings by District Judge Robert S. Keller in the case of North Fork Preservation Association, et al., vs. The Board of Oil and Gas Conservation et al., the Board of Oil and Gas Conservation has adopted rules providing public notice and the opportunity for a hearing prior to the

issuance of a permit to drill. This action was taken to satisfy the Montana Constitution's provision regarding the public's right to participate in governmental decisions and the opportunity to comment prior to final decisions by an agency, particularly where "significant public interest" may exist.

MEPA REQUIREMENTS REGARDING EXPLORATORY WELLS ON STATE-OWNED LANDS

On August 22, 1989, the Montana Supreme Court handed down its decision in North Fork Preservation Association (NFPA) vs. Department of State Lands (DSL) and CENEX. This case involved a tract of state-owned land leased by CENEX for oil and gas near the North Fork of the Flathead River.

In 1983, DSL issued 17 oil and gas leases to CENEX for tracts located in the North Fork drainage. DSL prepared a preliminary environmental review (PER) on the leasing. It determined that no significant impacts would result if 16 environmentally protective stipulations were attached to each lease. One of the stipulations prohibited any disturbance on the leased tract until CENEX had submitted an operating plan and received approval of that plan from DSL. In 1984, CENEX submitted an operating plan to drill an exploratory well on the tract. DSL reviewed the plan and prepared a PER on the plan. In the PER, DSL determined that no EIS would be necessary if the plan were subject to 31 additional stipulations. DSL then granted permission, conditioned by the 31 stipulations, to drill the exploratory well.

NFPA filed suit, contending that DSL should have prepared an EIS on the approval of the exploratory well, both because the impacts of the exploratory well could be significant and because an oil and gas strike could lead to full-field development, the impacts of which would be significant.

In its decision, the Supreme Court upheld DSL's action. The Court held that DSL was not required to consider the impacts of full-field development when it approved drilling the exploratory well, as long as it retained the right to

deny further development. In reviewing DSL's conclusion that the impacts of drilling the exploratory well would not be significant, the Court stated that an agency's decision not to prepare an EIS would be upheld as long as it considered the relevant factors and was not based on any clear error of judgment that could be characterized as arbitrary and capricious. The Court in its decision noted that DSL had taken public comment, consulted relevant agencies and organizations, reviewed studies and other reference materials, and placed conditions on the lease to mitigate the impacts below the level of significance.

In summary, then, the Court indicated that in reviewing an agency decision not to prepare an EIS, the Court will ask three questions:

- 1) Was the agency action unlawful?
- 2) Did the agency, in reviewing its decision, consider all relevant factors?
- 3) Did the agency, in reviewing the relevant factors, commit a clear error of judgment that could be characterized as arbitrary or capricious?

In answering the first question, the Courts will determine whether the scope of the environmental analysis is adequate. In answering the second and third questions, the Courts will consider the extent of the agency's consultation with other agencies and the public, the degree of the agency's research and analysis, and the agency's action to mitigate any significant impacts that are identified.

CHAPTER SIX

COMPONENTS OF THE BOARD'S MEPA PROCESS

INTRODUCTION

This chapter discusses changes made to the draft PEIS Chapter Five, Program Alternatives. The Board made these changes to clarify the options it believes necessary for successful implementation of an efficient and timely environmental review process.

A major purpose of this programmatic environmental impact statement is to help determine a process the Board could use in evaluating the environmental impacts associated with individual drilling proposals. This process would include a method for incorporating environmental review considerations into the Board's rules and drill permitting process. Chapter Four of the draft PEIS provides a record of information for the Board to rely on when evaluating individual permits to drill. This record of information identifies the

range of environmental impacts associated with oil and gas development in the major producing basins and ecosystems of Montana and methods to mitigate long-term impacts and avoid permanent environmental impairment.

This chapter (1) summarizes the environmental impacts associated with drilling and production from the draft PEIS; (2) summarizes mitigation options presented in the draft PEIS; (3) discusses alternatives available to the Board for incorporating environmental review into its rules and drill permitting process; and (4) discusses the administrative alternatives available to the Board to expeditiously determine the level of environmental review necessary in the context of individual drilling proposals.

SUMMARY OF IMPACTS AND MITIGATING MEASURES

In most cases, the drilling of an individual oil or gas well will not result in major adverse impacts on the environment if proper care is taken in siting and construction, if drilling muds and fluids and any other wastes are disposed of in an appropriate manner, if safe drilling practices are observed, and if proper reclamation is used. Other than these considerations which are applicable to all drilling operations, the potential for adverse impacts depends almost entirely on the sensitivity of individual drilling locations. Factors such as the length of time and size of drilling rig necessary to drill a particular well increase the potential for impact, particularly in sensitive settings. In some cases, an environmental feature will signal the need for special precautions because it represents a constraint (e.g., geologic features such as rugged topography and unstable slopes, hydrogen sulfide). In other cases, a sensitive feature may have characteristics that are particularly vulnerable to the disturbance or changes caused by oil and gas activity.

The situation where major adverse environmental effects are most likely is when a wildcat drilling operation leads to discovery of a commercially producible oil or gas reservoir and full-field production commences in a previously undeveloped area. Even under these circumstances, the impacts are highly dependent upon the location where the development

takes place, and any effects should be evaluated in consideration of the long-term nature of production activities.

The following summary of impacts is condensed from the analysis contained in Chapter Four of the draft PEIS. While potential for some impact may exist with any particular well, estimates of the probable magnitude and significance of an impact depend primarily on the location where drilling is proposed and upon measures applied to avoid adverse impacts. Additional detail regarding how the Board would make these judgments for any particular drilling proposal are discussed in a later section on review of drilling proposals.

GEOLOGY AND SOILS

The characteristics of geology and soil most likely to constrain oil and gas drilling and production include rugged topography and unstable soils, and problematic characteristics of oil and gas formations, including the presence of hydrogen sulfide, salt zones, and water with high concentrations of sodium chloride and total dissolved solids. These features usually require special site construction and reclamation methods, special equipment and operating procedures, and careful waste disposal practices.

AIR QUALITY

Most individual wells do not produce pollutants in quantities or concentrations that would violate air quality standards or trigger the need for an air quality permit. In the rare instance when a problem does arise the effects may include: (1) increased dust and airborne particulates created by site and road construction and generated by vehicles; and (2) increased nitrous oxides due to the operation of the drilling rig and other engines. Except in rare situations where a number of wells are simultaneously drilled in close proximity or where the drilling location is in an area of constrained topography (for example, a narrow mountain valley), these air pollutants are not likely to reach levels that trigger permit requirements or violate ambient standards. The exception for nitrogen oxide would be a drilling operation lasting several months and using a drilling rig of 1,500 horsepower or greater capacity and other associated engines. Increased particulates would generally be a short-term construction impact that could be successfully minimized if efforts (watering the roads, for example) are made to suppress dust, especially in residential areas or other locations frequented by the public.

The air pollutants associated with oil and gas production with the greatest likelihood of causing adverse impacts include hydrogen sulfide, sulfur dioxide, and other sulfur compounds. The situation most likely to cause impacts or trigger regulatory requirements would be the venting or flaring of hydrogen sulfide over an indefinite period of time by a number of wells in a single field or series of adjoining fields. Activities such as drill stem tests, gas/oil ratio tests, and production stabilization tests also can create or contribute to adverse impacts, but usually only on a short-term basis. Sulfur dioxide would typically occur in concentrations or volumes sufficient to cause problems only if high volumes of gas were being flared to convert hydrogen sulfide, and when on-site uses of gas containing hydrogen sulfide are substantial.

The severity of adverse impacts depends on the concentration of hydrogen sulfide in the gas, associated gas, or oil; the volume of production; proximity of residences, public roads or areas accessible to the public; proximity of Class I or other sensitive areas where air quality degradation is especially problematic; and local terrain and meteorological conditions.

Analysis in Chapter Four of the draft PEIS shows that the Board's current rule limiting flaring to an average of 100,000 cubic feet per day each calendar month can trigger the requirement for an air quality permit, and may result in violations of ambient air quality standards in some situations. In some cases, special emission control technologies and procedures might be necessary to avoid violations, while in other situations it might not be possible to flare up to the limits of the Board's rule without causing violations. Consultation between the Board and the Air Quality Bureau

when variances from the Board's flaring rule are requested would allow problem situations to be detected and addressed.

HEALTH, SAFETY AND NOISE

The oil and gas industry has developed an extensive array of specialized equipment and procedures to ensure proper control and operation of wells. Also, contingency plans may be prepared in sensitive locations to identify the actions that would be taken to respond to a hydrogen sulfide emergency and protect the public.

The potential for adverse affects on human health and safety from oil and gas drilling and production results primarily from loss of control of a well and, where hydrogen sulfide is present, the possibility of a major blowout or pipeline rupture exposing the public to elevated and possibly lethal concentrations of the gas. Loss of control of a well where no hydrogen sulfide is present normally would not pose a threat to the public, but workers could be endangered. Well blowouts are extremely rare occurrences, but where concentrations of the gas and flow volumes are relatively high, and where residences or urban centers are relatively close to a well, the consequences of a blowout could be highly adverse.

The discussion in Chapter Four of the draft PEIS indicates that the Board rules could specify in greater detail the minimum types of equipment and procedures necessary to ensure proper control of wells, with special provisions, if appropriate, and identifying areas or formations where conditions warrant greater precautions. Chapter Four of the draft PEIS also indicates that Board could establish criteria or a review process to determine when hydrogen sulfide emergency plans should be prepared for individual wells.

Typical drilling operations cause noise levels in excess of the 55 decibels-A weighted-scale (dBA) that EPA has established as a guideline for continuous exposure. The noise from drilling operations typically exceeds this threshold approximately 1/2 mile from the drill site. A drilling rig may cause noise levels in excess of the EPA sleep interference guideline (35 dBA) at greater distances from the site. Gas pipeline compressor stations that are operated for the life of a producing field produce similar noise levels.

Off-site noise levels during drilling can be reduced by use of mufflers, sound screens, auxiliary brakes when stopping the draw works, by using diesel-electric drilling rigs, and by orienting the rig to reduce sound levels in the direction of residences. Mufflers, barriers, and screens can reduce noise levels by as much as 25 dBA. Noise levels during the production phase also can be reduced. Gas compressor stations can be located away from residences and sensitive wildlife habitat. For oil fields, an option for reducing noise is to use electric pump jacks, which are at least 30 dBA quieter than gas-powered engines. Alternatively, gas-powered engines can be equipped with mufflers.

WILDLIFE AND FISHERIES

In most cases, an individual well drilling operation will not create significant long-term adverse effects on wildlife if the well turns out to be a dry hole and the access road is reclaimed. Potential for significant adverse impacts will be greatest where an initial wildcat well leads to discovery of a commercial oil and gas reservoir and full field development, or where an access road into a previously inaccessible area is not reclaimed.

Possible adverse impacts on wildlife from oil and gas development are those associated with increased road construction; displacement of animals from winter range in mountainous areas; stress during the winter, spring, and young-rearing period. Based on criteria such as acres of winter range, susceptibility of winter range to impact, species diversity, and probability of impact on resident species, the regions of the state most susceptible to adverse impact, in decreasing order of importance, are: Overthrust, Northern, Big Horn, Central, Powder River and Williston Basin. Operations located in mountainous terrain can be expected to create more serious impacts on wildlife because of the greater importance of critical habitat and presence of more sensitive species in these areas. The likelihood of an adverse impact occurring in any particular location depends on the intensity of oil and gas activity, including length of time that operations occur, sensitivity of the environment, cumulative disturbance that a wildlife species has been subjected to previously, and implementation of mitigation measures. Areas that include habitat used by threatened or endangered species are especially sensitive to disturbance and may require special evaluation to determine how development can proceed in the least intrusive manner.

Streams most likely to be adversely affected are Class I and II streams (as classified by the Department of Fish, Wildlife and Parks). These streams tend to support the highest populations of recreationally valued fish and fish species especially sensitive to water quality degradation. Development of roads and other facilities along or near these streams could significantly increase suspended and deposited sediments, thereby reducing habitat and fish populations. Oil, chemical, and drilling fluid spills, even of relatively low volume, could result in adverse impacts on fish populations.

The most effective means of mitigating wildlife impacts is first by avoidance of critical habitat, and second by restricting activities in the seasonally important habitats to times of year when these areas are not critically important to the life cycles of sensitive species. Seasonal and daily management of traffic on access roads, including road closure and siting roads so that they are screened from view, also are effective ways to reduce impacts. Road obliteration is effective in reducing impacts where continued use poses an adverse impact on wildlife. Riparian areas, woody draws and

wetlands should be avoided wherever possible. Sedimentation of rivers and streams can be avoided by constructing roads on non-erodible soils and on gentle slopes as far from water as possible, or by prompt revegetation of disturbed areas.

WATER QUALITY

The primary sources of water pollutants from oil and gas drilling are reserve pit fluids and muds. The main pollutant associated with oil and gas production is produced water, especially when it contains high concentrations of sodium chlorides and total dissolved solids. Adverse impacts are most likely to occur when reserve pits and produced water evaporation pits are located close to potable sources of either surface or groundwater, when subsurface soils are porous and therefore do not inhibit leaching and downward migration of fluids, and when the fluids, drilling muds, and produced waters contain elevated levels of salts, trace metals and total dissolved solids. The potential for contamination of both surface and groundwater can be greatly reduced by proper siting, construction, maintenance and reclamation of reserve pits and produced water pits, and by appropriate disposal of wastes. The analysis in Chapter Four of the draft PEIS indicates that existing Board regulations could provide more specific directions.

RECREATION AND AESTHETICS

The impacts associated with drilling often are short term and localized. Exploratory drilling that results in development of a new oil or gas field has the greatest potential to result in long-term, significant impacts on recreation and aesthetics. Aesthetic impacts will be more severe in areas of high scenic quality, high viewer sensitivity to intrusions, and high potential for landscape alteration.

Some recreation activities may be permanently displaced and changes in recreational use patterns may occur due to the cumulative effect of new and upgraded access roads and a change in the character of an area from less to more developed. These impacts would be incremental where development occurs within or near existing oil and gas fields. In general, the scale of potential impacts associated with field development will be greater with oil production than with gas production because the former generally involves use of more surface facilities with wells closer together. In some instances, access roads can provide additional recreation opportunities.

Examples of potentially sensitive recreation areas and sites include national, state and local parks and recreation areas; wild, scenic and recreational rivers; established trail systems; private campgrounds, resorts and dude ranches; fishing access sites; rivers and streams with high quality fishing; natural areas; and areas with unique habitats. Other examples of sensitive viewing areas are residential areas and

highways and roads. Examples of options that may mitigate adverse effects on recreational use of these areas include avoidance of the areas by oil and gas equipment and vehicles, establishment of buffer areas around developed recreation sites, restricting oil and gas activity to times of day or season to minimize conflicts, use of natural vegetation and topography to screen oil and gas facilities, siting and construction of roads and other facilities to minimize disturbance of land forms and vegetation, and reclamation of disturbed areas to return them to natural conditions to the extent feasible.

VEGETATION

Impacts on vegetation tend to be most serious in areas with high erosion potential or areas where local conditions make reclamation difficult. Specialized techniques and additional cost, time, and labor may be necessary to restore some areas to their previous productive capability. Disturbance of the surface can often encourage the spread of noxious weeds. Prompt reclamation of disturbed areas, weed control efforts during the time that sites and roads are in use, and cleaning of vehicles to remove weed seeds may be necessary to mitigate this potentially serious problem. Avoidance of special status plants, some of which are rare in Montana, is another mitigating measure that may be applicable in some locations.

LAND USE AND COMMUNITY CONFLICTS

Potential land use impacts primarily consist of conflicts between oil and gas activities and other uses of property such as agriculture and residences. Direct impacts, that is, those effects directly associated with disturbance of the land surface, may be easier to mitigate through modifications of the oil and gas operations around irrigation equipment and through eventual reclamation. These impacts are usually reduced through negotiations between the landowner and the company. Indirect effects, such as visual effects and traffic impacts on property near to or adjoining an oil and gas lease, are more difficult to mitigate. For example, residential impacts often involve issues such as residents' expectations for maintaining the character of their neighborhood, health and safety concerns, and waste disposal.

CULTURAL RESOURCES

Impacts on cultural, historical and archaeologic properties or sites have many characteristics in common with recreation and visual impacts (e.g., changes in the quality of visitor experience and changes in integrity of the setting of a historic or cultural property). Further, some cultural sites or objects could be destroyed or impaired. As with recreational and visually sensitive areas, avoidance or creation of buffer zones around known cultural resources is the most effective way to reduce impacts.

ECONOMIC AND PUBLIC SERVICE EFFECTS

Oil and gas activity has produced significant benefits for the Montana economy, contributing revenues to state and local governments and the educational systems and income to private mineral owners and businesses. The industry also is subject to boom/bust cycles which contribute to problems for local and regional economies and to problems for local governments in providing public services. Natural gas exploration and development has had less social and economic effect than those attributed to oil exploration and development. Several factors contribute to the effects, both positive and negative, associated with development and production.

Intensity of development is greatly influenced by the price of oil and the economics of exploration activity. Successes in making new discoveries also can notably increase interest in leasing and drilling in an area.

Deep wells require larger workforces for longer periods and have greater employment and income effects than do shallow wells. Most of the direct employment in the industry occurs during well development, with a much reduced workforce during production. Employment levels and the effect that oil and gas-related activity have on an area are influenced by the length of time required to drill a well, the number of wells drilled, and the characteristics of the economy in the area affected. Montana's large cities are better able to handle moderate-to-large temporary changes in economic activity and population with the attendant demands for services than are smaller cities and towns. The seriousness of these effects depends on the extent of the activity and how well the local community can adjust to changes in the economic situation and in the demand for services. Often the collection of revenues needed to fund public services lags behind the demand for these services, or revenues are collected by jurisdictions other than those receiving the increased demand for services. During boom periods, this has required local governments to incur long-term debts to fund capital improvements such as sewer and water to serve a temporary workforce.

In smaller communities, the bust effect also can result in business failures, significant reductions in local employment and incomes, and financial difficulties for local governments and education systems.

Actions by local governments, schools, and businesses can lessen the disruptive effects and rapid changes that can accompany oil and gas development. When planning, actions should be based on best possible information about industry activities and an understanding of the cyclical nature of oil and gas developments. Problems for local governments and schools can remain when capital improvements are required as a result of the demand for services.

ENVIRONMENTAL REVIEW ALTERNATIVES

As described in Chapter One of the draft PEIS, Senate Bill 184 requires that the programmatic impact statement discuss methods for incorporating environmental review into the Board's rules and drill permit process. The remainder of this chapter describes in detail a number of program and administrative alternatives that include (1) methods for the Board to expediently evaluate environmental impacts associated with individual drilling proposals, and (2) methods and measures for the Board to use to help ensure that oil and gas drilling and production occurs in an environmentally sound and reasonable manner. The latter category of options is intended to provide the basis for the Board to be able to conclude, for a majority of drilling and production operations, that significant impacts on the quality of the human environment will not be likely to occur if the operations comply with Board rules, guidelines, and permit conditions.

Much of the discussion that follows concerns how the Board could determine the appropriate level of evaluation required for various types of drilling projects and how some of the options or steps in the environmental review process could be eliminated or rendered unnecessary for some drilling proposals. In a few cases, primarily those involving wells proposed in extremely sensitive areas or the development of new well fields, detailed site-specific environmental review may be necessary to determine the extent of impacts and identify appropriate mitigation. A listing of program and administrative alternatives that would assist the Board in fulfilling its environmental review objectives includes but are not necessarily limited to the following:

- 1) collection of data describing proposed drilling operations and locations;
- 2) development of levels of review and companion procedures to provide for technical review of applications for permits to drill;
- 3) pre-drill site inspections where special conditions warrant;
- 4) attachment of general and/or site-specific conditions to drilling permits to mitigate adverse impacts;
- 5) where conditions warrant, consultation among the Board and landowners, land-managing agencies, and other agencies with jurisdiction or expertise concerning environmental resources that might be affected by drilling and production;
- 6) development of guidelines specifying minimum appropriate practices for various aspects of oil and gas drilling and production in Montana;
- 7) revision and additions to Board rules to ensure availability of sufficient information to conduct environmental review and to assist in implementing appropriate mitigation;
- 8) development of Memorandums of Understanding defining how the Board and other agencies would coordinate their respective responsibilities for oil and gas drilling and production, and for resources affected by these activities;

- 9) field inspections and enforcement of Board-imposed requirements for drilling and production activities; and
- 10) training and education for existing Board staff and potential addition of new staff.

The alternatives discussed in this chapter are presented to fulfill both the overall purposes of the programmatic environmental statement and to address specific types of environmental problems that can be associated with oil and gas drilling and production. To meet the requirements of Senate Bill 184, the Board may choose to implement some or all of the alternatives discussed herein.

A primary requirement of the Montana Environmental Policy Act is that state agency decision makers must consider the environmental consequences of their actions to the fullest extent possible. This includes the environmental consequences of projects that must receive agency approval. Agencies also are directed to integrate use of the natural and social sciences and principles of environmental design in planning and decision making. These provisions and guidance provided by various court decisions at both the state and federal levels have resulted in efforts by state agencies to identify ways for programs and projects to minimize adverse environmental consequences.

Virtually all agency actions occur in compliance with specific laws that establish the agencies' general areas of responsibility and, in some cases, the specific limits of their authority over particular types of activities. The Board's authority over oil and gas drilling and production is conferred by the Montana Oil and Gas Conservation Act. This Act primarily focuses on the conservation and prevention of waste of oil and gas, but it also specifically authorizes the Board to prevent drilling and production operations from contaminating or damaging surrounding land and underground strata.

This document cannot resolve existing legal ambiguities concerning either the limits of the Board's authority or the limits of its discretion to address environmental issues. Alternatives for clarifying legal issues include legislative action, court decisions, and attorney general's opinions. These alternatives are available to affected parties but they are not the focus of this programmatic statement. Rather, emphasis has been placed on clearly and accurately identifying the range of potential environmental impacts that could occur as a result of drilling and production. Equally important to the analysis is the identification of mitigation strategies that could be expected to be reasonably effective in reducing adverse effects if appropriately applied. The following discussion places additional emphasis on tailoring the environmental review process and any resulting mitigation measures to the impacts that can reasonably be expected from any individual drilling or production operation and

location. As discussed further below, options are available for addressing most potential environmental problems. Regardless of how or whether the legal ambiguities are eventually clarified, the key element to successfully incorporating environmental review into the Board's permitting process is to devise reasonable solutions to site-specific problems on the basis of cooperation, timely sharing of information, and, where necessary, detailed interaction and discussion among the Board, oil and gas operators, landowners, and other affected parties.

TOPICS FOR POTENTIAL BOARD RULE REVISIONS AND GUIDELINES

The following discussion separates the aspects of oil and gas drilling from those of production to summarize where more detailed guidance may be warranted. Later sections discuss administrative alternatives available to help the Board decide which requirements are specifically appropriate to individual drilling sites, and to ensure that only those practices that are reasonable and justified by site-specific conditions are required.

If the Board develops new guidelines or revises its rules following the adoption of this programmatic statement, the Board could request other agencies with jurisdiction or special expertise in topic areas covered by the rules to review and comment on draft rules. Opportunities for review by industry and other interested groups also could be provided prior to public hearings on the proposed rules.

Table 40 summarizes most of the rule-related alternatives that are discussed in the text and identifies options that currently are being implemented by the Board, neighboring states, the Bureau of Land Management, and the Province of Alberta. In some states, an agency other than the oil and gas agency may be responsible for implementing certain items.

DRILLING PHASE OF DEVELOPMENT

Siting and Construction of Drill Locations and Access Roads. As discussed in the draft PEIS, Chapters Three and Four and related appendices, oil and gas operators generally tend to rely on existing roads wherever possible and to construct the minimum length and quality of new roads necessary to enable the required equipment and vehicles to reach a drilling location. For example, operators will usually drive over open rangeland or rely on bladed trails except where rugged terrain require cut-and-fill construction and higher grade road surfaces. In many cases these practices help avoid or reduce some of the more serious impacts attributable to road construction.

It is not possible or practical to specify general road construction guidelines that would be applicable or appropriate to all types of locations in Montana where drilling or production operations might occur. However, there are a

number of design principles that oil and gas operators could observe, particularly when it is necessary to construct a new access road across a stream or when cut-and-fill construction is necessary. The U.S. Forest Service and BLM have established practices and procedures for road location, construction, and management. Those practices are discussed in the publication containing federal Oil and Gas Surface Operating Standards, known as the Gold Book (BLM and U.S. Forest Service 1989). Access roads across private lands usually are constructed to less stringent standards than those on public lands, but the construction methods and techniques to minimize impacts are similar.

Except where a drilling operator is able to rely exclusively on existing roads and tracks, the location of the access road may be one important factor influencing a wide range of potentially significant impacts that may be caused by oil and gas drilling and production. It is important for oil and gas operators, landowners, and any other potentially affected parties to cooperate at an early stage of drill site planning to identify options for siting access roads in a location and manner that will best balance cost considerations, the landowner's preferences, and mitigation of adverse environmental impacts.

Reserve Pit Construction, Liner Specifications, and Reclamation. The Board's current rule concerning reserve pits requires the pits to be constructed in a "manner adequate to prevent undue harm to the soil or natural water in the area" and that "when a salt-base mud system is used as the drilling medium, the reserve pit shall be sealed when necessary to prevent seepage." The rules also stipulate that solid wastes accumulated during drilling must either be removed from the site or buried to a minimum depth of 3 feet. Based on the analysis in Chapter Four of the draft PEIS, it appears that the potential for contamination of both surface- and groundwater and soils would be substantially reduced if the Board's rules were to specify how pits should be constructed, how liners should be installed and what quality of liner is necessary. The likelihood of contamination would be further reduced if pit reclamation methods and procedures were specified according to site conditions, particularly for sites where plastic liners are deemed necessary.

The Board could modify the existing rule that requires an oil and gas operator to exercise judgment in determining what is necessary to avoid undue harm to the soil or natural water of an area. The Board could provide criteria for making these judgments, or it could decide what is required on a site-by-site basis.

Examples of criteria for determining pit design and reclamation requirements include depth to groundwater, soil porosity, and chemical content of the drilling mud and fluids. Decisions on whether it is more appropriate to leave drilling wastes in the pit or to haul the wastes to another location for ultimate disposal could be based on these same criteria.

Table 40. Summary of Administrative Options for Revising Board Rules.

<u>Topic Area</u>	<u>Administrative Option</u>	<u>Used By:</u>	<u>Comments</u>
1. RESERVE PIT CONSTRUCTION AND DESIGN REQUIREMENTS	a) Rely on general "no pollution" provision.	Colorado	No specific rules or state involvement. Rely on landowner/company agreement. Agency does enforce "no pollution" requirement (rule 317(c)).
	b) Require that pits be sealed or lined when drilling with certain muds such as salt-based muds.	Montana	ARM 36.22.1005(2) requires that a pit be sealed when necessary to prevent seepage; operator to construct pit to prevent undue harm to soil or natural water.
	c) Require special permit or approval for any earthen pits used during drilling.	Wyoming	Rule 326 requires pit approval (Form 14-B). Supervisor determines if lining is necessary to protect surface- or groundwater. Separation distances from surface waters and water supplies specified.
		New Mexico	Liners required in specific drainage basins. Pit design and notice of liner required as part of drill permit approval. (Guidelines vary among districts within the state.)
	d) Determine pit lining requirements on a case-by-case basis using pre-drill or other site inspection.	North Dakota	Rule 43-02-03-19 requires supplemental information as part of permit application. Permit may be approved before site inspection but inspection usually once prior to drilling and weekly during drilling.
	Same as d).	Utah	Rule 615-3-16. Site inspection occurs within 15 days of permit application and requirements tailored to the site. Inspections include state geologist, company, and landowner to determine conditions to be placed on drill permit. Unlined pits are inspected again during drilling.
	Same as d).	Alberta	ERCB guidelines contain detailed site design factors and specify separation distances from surface waters or water supplies. Actual requirements tailored to site conditions following a pre-drill site inspection.

Table 40. Continued

2. DRILLING WASTE DISPOSAL PRACTICES	Same as d).	B L M / U . S . Forest Service	43 CFR 3160 (Onshore Oil and Gas Order 1). Both agencies use guidance in this order for authority to determine requirements on a site-by-site basis using information supplied in permit application and obtained from a site visit. F.S. is proposing new regulations which would provide additional guidance on Forest Service lands (draft 36 CFR 228E).
	a) Allow burial on-site in virtually all cases, including breaching of liners and trenching.	Montana	ARM 36.22.1005(1) allows operator discretion to remove waste or to bury on site 3 feet below restored land surface.
		New Mexico	No specific disposal requirements, although agency enforces general non-degradation rules.
		Colorado	Relies completely on agreements between landowner and company.
	b) Based on individual site characteristics, may allow on-site disposal of wastes with appropriate methods to ensure wastes are contained.	North Dakota	Under Rule 43-02-03-19, agency allows on-site burial of muds if site is on impermeable soils; water protection concerns including high water table, nearby stream, or permeable soils may require removal or other treatment such as solidification.
	Same as b).	Wyoming	Under Rule 326, agency requires on-site inspections while pits are in use. Disposal on site generally acceptable; some muds (oil-based mud and muds containing heavy metals) may require treatment prior to pit closure.
	Same as b).	Utah	Evaporation and burial used where pit properly operated and no evidence of leakage found during inspections. Disposal requirements not detailed in rules since this decision relies on the pre-drill site inspections to determine construction and disposal options (Rule R615-3-16).
	Same as b).	Alberta	Provincial consent required for on-site disposal. Muds are screened using lab toxicity test. Appropriate disposal methods may require no treatment, treatment on site, or reinjection.

Table 40. Continued

<u>Topic Area</u>	<u>Administrative Option</u>	<u>Used By:</u>	<u>Comments</u>
2. Continued	b) Continued	B L M / U . S . Forest Service	Based on case-by-case evaluation of site and mud characteristics, agencies evaluate disposal options including solidification, chemical treatment, or reinjection (NTL-2B).
	c) Under appropriate circumstances, require off-site disposal at acceptable disposal site.	Alberta	Following screening, removal of high toxicity muds could be required if on-site treatment and/or reinjection options are not workable.
	Same as c).	B L M / U . S . Forest Service	Off-site disposal can be required under NTL-2B. Decisions regarding off-site disposal depend on factors present at drill site, chemical characteristics of the mud and the practicality of removing the muds and solids from the site.
	Same as c).	North Dakota	Specific site conditions (for example, high water table, nearby stream, or permeable soils) may require that muds be hauled to state-approved disposal site. Small percent (4-5) of sites require this method (Rule 43-02-03-19).
3. PIT RECLAMATION REQUIREMENTS AND METHODS	a) No special requirements for pit reclamation other than return to near original contour or productive capability.	Montana	ARM 36.22.1307: when weather or ground conditions permit, the site shall be restored to its previous grade and productive capability and that necessary measures be taken to prevent adverse hydrological effects. Landowners may agree to other reclamation measures.
	Same as a).	Colorado	No special measures beyond general requirements for "no pollution." Reclamation measures negotiated by landowner and company (Rule 317(e)).
	b) Specify certain requirements for pit reclamation, including time limits for completion, or other measures on a case-by-case basis.	New Mexico	Uses regional guidelines specifying time limits (usually 3 months), depth of burial (2 feet of covering), and near original contours.

Table 40. Continued

Same as b).	Wyoming	Specify (Rule 326) certain reclamation requirements, including time limits (no later than 1 year), topsoil stockpile and salvage, species mix on public lands (private lands proposed for inclusion), and fencing during pit drying. Landowner can recommend alternative or more specific measures.
Same as b).	North Dakota	Rule 43-02-03-19 requires time limits (not more than 1 year), cover depth (4 feet), topsoil stockpiling and salvage, fencing, and restoration to near-original contour.
Same as b).	Utah	Specific determination of reclamation requirements depend on results of predrill site inspection (Rule 615-3-16). Measures for reclamation attached as permit conditions (Rule 615-3-18).
c) Require approval of specific reclamation plan or oversee development of comprehensive pit reclamation procedures or measures.	North Dakota	Require reclamation plan approval by inspector prior to start of reclamation (Rule 43-02-03-19).
	Alberta	Surface Conservation and Reclamation Law provides ERCB authority to issue Reclamation Certificate to require operator to bring site back to original condition. Bond not released for 5 years following drilling.
Same as c).	B L M / U . S . Forest Service	43 CFR 3160 (Onshore Order 1) provides agencies with general authority to oversee all aspects of reclamation. Agencies coordinate with surface owner where federal minerals are under private surface. Approved site reclamation plan required for all wells.
a) Generally require all sites be restored to an acceptable standard.	Montana	ARM 36.22.1307 requires that site be restored to previous grade and productive capability.
Same as a).	New Mexico	Regional guidelines described general acceptable conditions. Rely to large extent on negotiations between company and landowner.
Same as a).	Colorado	General abandonment requirements for returning well to approximate original condition (Rule 319).

4. GENERAL SITE RECLAMATION

Table 40. Continued

<u>Topic Area</u>	<u>Administrative Option</u>	<u>Used By:</u>	<u>Comments</u>
4. Continued	b) Require certain individual aspects of reclamation for sites, including stockpiling of soil and specifying acceptable seed mixtures or site-specific conditions.	North Dakota	Well site restoration (43-02-03-15) requirements less specific than those for reclamation of pits (43-02-03-19), but in practice similar.
		Wyoming	Well site restoration requirements less specific than those on pit restoration (Rule 326), but in practice similar.
		Utah	Up to end of 1988, general site reclamation requirement applied as permit conditions based on site inspection. Beginning in 1989, specific well site reclamation requirements to be adopted, including landowner consultation provisions.
	c) Specify comprehensive reclamation requirements or require operator to submit a reclamation plan.	Alberta	Under provisions of the Surface Conservation and Reclamation Law, ERCB requires a detailed surface reclamation plan covered under the Reclamation Certificate. ERCB acts as mediator in disputes over reclamation requirements where private surface and mineral estates are separated.
	Same as c).	B L M / U . S . Forest Service	Detailed surface reclamation plan required. Where surface is privately held, agencies consult with landowner to determine reclamation requirements (43 CFR 3160, Onshore Order 1).
	a) Rely on negotiations between landowner and company to resolve issues.	Montana Colorado New Mexico	
5. ROAD SITING, CONSTRUCTION, AND RECLAMATION	b) Require road reclamation bond or minimum road reclamation requirements.	North Dakota	Road reclamation included under general site reclamation bond.
		Wyoming	Road reclamation included under general site reclamation bond. Landowner can waive reclamation of road. On one occasion, agency conditioned well approval on the use of an alternative road location.

Table 40. Continued

6. PRODUCED WATER DISPOSAL METHODS AND PRACTICES	c) Address issues about road siting or design based on landowner requests.	Utah	Road to be formally included under site reclamation bond beginning January 1989. Prior to this date, road issues were addressed at predrill site inspection; without agreement between landowner and company, inspector determined minimum acceptable reclamation requirements (R615-3-18).
	Same as c).	North Dakota	On a voluntary basis, when requested by the landowner, the agency has recommended road siting and reclamation measures (Rule 38-08-04).
	d) Detailed agency review of road siting and design based upon information supplied by operator or developed by the agency.	Alberta	Separate permit required from Forestry, Lands, and Wildlife Agency for roads crossing Provincial (Crown) lands; where negotiation on private lands does not resolve road issues, ERCB may use an "induced negotiation" process to resolve issues. ERCB staff also assists in fulfilling negotiated road agreements.
	Same as d).	B L M / U . S . Forest Service	General authority over roads given by Onshore Order 1 and various federal laws granting agencies responsibility for land management. Detailed policies and procedures for road siting and design are found in Forest Service and BLM operation and procedure manuals. In 1989, the agencies published the "Gold Book" (3rd edition) which summarizes the various direction given in each agency manual. Where private surface overlies federal minerals, agencies cooperate with the landowner in locating, constructing, and reclaiming roads.
	a) Established general requirements for impounding salt or brackish water in earthen pits.	Montana	ARM 36.22.1227 allows disposal of salt or brackish water when pit is underlain by tight soil such as heavy clay or hardpan.
	b) Require individual pit licensing, registration, or lining requirements based on case-by-case evaluation.	Colorado	Rule 325 requires application for permit (Form 15), including analysis of produced water, description of quality of water in receiving area, and a soil analysis. Board determines when liners are used based on site conditions.

Table 40. Continued

<u>Topic Area</u>	<u>Administrative Option</u>	<u>Used By:</u>	<u>Comments</u>
6. Continued	b) Continued	Wyoming	Requires pit registration (Form 14a) and permit. Certain requirements pertaining to acceptable locations have been established (Rule 326). Separate regulations (NPDES) for water quality may apply through Department of Environmental Quality.
	Same as b).	Utah	Rules 615.9-1 through 9. Permits required for all disposal sites. Liners generally required, although unlined pits may be approved. Certain requirements for pit construction and design have been established (Rule 615.9-4). New rules (January 1989) require synthetic liners rather than compacted bentonite.
	c) Prohibit use of surface pits completely or under certain conditions.	Montana	ARM 36.22.1227(2) prohibits use of pits where soil is porous or closely underlain with gravel or sand.
		North Dakota	Prohibits virtually any use of surface pits (Rule 43-02-03-53(2) and (5)). A few grandfathered pits do exist but require a monitoring system to ascertain impermeability of the pit. Above-ground, produced water tanks widely used.
	d) Require comprehensive pit construction methods or procedures.	New Mexico	Requires registration for produced water pits. Clay or equivalent liners generally required. Regional guidelines for design and construction of pits have been developed. Leak detection systems required in sensitive water areas.
	Same as d).	Alberta	Has established pit design and construction specifications. Requires pit registration and permit. Pit specifications may vary between districts. Site monitoring not required. Policy is to phase out surface pits.
	Same as d).	B L M / U . S . Forest Service	NTL-2B provides general guidance and authority for produced water disposal. Disposal based on case-by-case evaluation. Produced water of poor quality and/or large volumes may require special treatment.

Table 40. Continued

7. PRODUCTION FLARING AND VENTING AS RELATED TO AIR QUALITY REQUIREMENTS	a) No routine evaluation requirements for air quality impacts; limited review for any flaring approval.	Montana	Venting limited to 20 MCF per day. Average flaring limit of 100 MCF per day without a permit. All gas containing 20 ppm of hydrogen sulfide must be burned (ARM 36.22.1220 and 1221). Oil and Gas Division approves all flaring. Air Quality Bureau involved when air quality complaints are received, but not routinely involved in flaring decisions. Air quality permit required by Air Quality Bureau when emissions exceed 25 tons per year.
	b) Share information with air quality agency or require specific information for sour wells.	Utah	Maximum flaring limit of 25 MCF per day without a permit. Flaring above limit requires approval for flaring under restricted rate (R615-3-22). Complaints about flaring referred to oil and gas agency. Air quality agency does not review well flaring issues.
	Same as b).	Wyoming	Interagency "Policy Memorandum" (Guidelines under Section 19 of Wyoming Air Quality Act dated May 5, 1986) between oil and gas agency and air quality agency contains provisions for joint notice when flaring more than 50 MCF per day or for any well containing hydrogen sulfide. Air quality agency review normally triggered for any well containing hydrogen sulfide. An air quality permit required when emissions are likely to exceed 50 tons per year. New rule (Rule 346) effective January 1989 would formalize existing process and procedures for flaring review.
	Same as b).	New Mexico	Flaring requests authorized under Rule 306 (Form C-129) by oil and gas agency. Any flaring, except for completion and well tests, requires approval of district supervisor. Agreement with air quality agency requires that air quality consideration be given prior to flaring approvals. Rule 118 requires analysis of gas and other safety measures for hydrogen sulfide wells. Little flaring occurs.
	Same as b).	Colorado	Any well flaring more than 150 MCF per day requires application for flaring permit. Oil and gas agency may authorize flaring emissions up to 5 tons per year without air quality permit review. Any well emitting more than 5 tons of pollutants per year may require both a permit to flare from oil and gas agency and air quality permit from Department of Health. All sour wells require gas analysis be submitted to Department of Health. Any planned release of sour gas requires an air quality permit.

Table 40. Continued

<u>Topic Area</u>	<u>Administrative Option</u>	<u>Used By:</u>	<u>Comments</u>
7. Continued	c) Require registration and/or conduct routine evaluation of air quality impacts related to flaring requests.	North Dakota	A flaring permit not required, although several review requirements for wells may apply. After July 1, 1987, the Department of Health requires that all new or recompleted wells that flare gas be registered. Registration includes a review of flare stack specifications and possible ambient air impacts. Recommendations from the Department of Health are forwarded to Oil and Gas Division (Chapter 33-15-20). Wells that flare sour gas may require a hearing if flaring equipment does not meet minimum requirements. The Oil and Gas Division conducts any necessary hearings to determine flaring equipment requirements. The Department of Health may request that a hearing be held and usually participates regarding ambient air quality and public health issues.
	Same as c).	Alberta	The ERCB "Guide to Production Facilities Construction" requires detailed information necessary for approval of production facilities. ERCB reviews and approves all flaring emissions for air quality concerns. Wells containing more than 1 percent H ₂ S or which would emit 10 tons or more per day of sulfur compounds usually require detailed review.
	Same as c).	B L M / U . S . Forest Service	An environmental analysis of flaring impacts is usually conducted to meet requirements of the National Environmental Policy Act (NEPA). NTL-4A provides authority to regulate flaring. Threshold levels have been established that when exceeded, require modification of flaring requests, interagency consultation, or other more detailed air quality review.
8. ON-SITE SAFETY EQUIPMENT AND PROCEDURE	a) Specify general blowout prevention equipment (BOP) requirements.	Montana	ARM 36.22.1001(3) and (4). In proven areas (producing), equipment shall be in accordance with established practice. Unproven areas: mastergate or equivalent, an adequate BOP, and choke-and-kill line(s) of proper size and working pressure. All equipment shall be in good working conditions at all times.

Table 40. Continued

b) Specific detailed well control equipment and procedural requirements; or require operator to submit a well control plan.	North Dakota	Rule 43-02-03-23. BOP equipment not fully specified. Requirements for periodic equipment testing.
	Colorado	Rule 317 as amended (Cause 1, Order 1-34, December 1985), establishes detailed requirement on most aspects of BOP equipment and testing and worker safety and training. Relies on American Petroleum Institute Report #53.
Same as b).	Wyoming	Rule 320-A. Specifies detailed BOP equipment and procedures and delineates over pressure zones. Drilling in these zones requires minimum acceptable BOP equipment. For a major drilling program near a city, agency stationed a resident well inspector to monitor daily testing of BOP equipment. Worker safety or training not specifically addressed.
Same as b).	Utah	Requirements for well control (R615-3-7). Well control plan required when operating in hydrogen sulfide zones. Formations containing hydrogen sulfide identified through maps.
Same as b).	New Mexico	Establishes range of requirements depending on pressure and location distances from cities and residences. BOP diagram required as part of application to drill.
Same as b).	B L M / U . S . Forest Service	Onshore Order 2 describes newly adopted safety and BOP requirements for federal wells. These rules rely on recommended practices established by the American Petroleum Institute. BLM is also preparing rules addressing special requirement for wells likely to contain hydrogen sulfide.
Same as b).	Alberta	ERBC determines before drilling if a well in a mapped hydrogen sulfide area is a "critical" sour gas well. For critical sour gas wells, detailed well control, notification, evacuation, and BOP equipment requirements apply (Interim Directive 87-2).

Table 40. Continued

<u>Topic Area</u>	<u>Administrative Option</u>	<u>Used By:</u>	<u>Comments</u>
9. OFF-SITE EMERGENCY PLANNING	a) Require emergency contingency plans in hydrogen sulfide areas.	New Mexico	Requires certain safety devices and notification of surrounding residents within 1/4 mile (Rule 118E3)
	Same as a).	Alberta	Detailed requirements for emergency planning contained in ERCB Interim Directive 87-2 and Guidelines for Preparation of Emergency Response Plans for Sour Gas Wells.
	Same as a).	Wyoming	In identified hydrogen sulfide areas, Rules 202 and 206 are used to require preparation of a contingency plan.
	Same as a).	Utah	Rule R615-3-12 specifies drilling practices and requires written contingency plan when drilling hydrogen sulfide formations.
	Same as a).	B L M / U . S . Forest Service	A draft order detailing emergency response planning for wells containing hydrogen sulfide is being proposed. The material relies on recommended practices and procedures established by the American Petroleum Institute.

Source: Compiled by Mark Kelley and Kevin Hart, DNRC, based upon the phone interviews with officials in each listed agency .

Examples of specific rules the Board could consider include the following: (1) requiring minimum standards for liner material and installation in all reserve pits that would contain salt-based drilling fluids; (2) requiring liners in any reserve pit located within a certain distance of water wells or potable groundwater supplies; (3) prohibiting construction of reserve pits in fill or other porous material, in wetlands, or in areas that block drainages; (4) prohibiting use of reserve pits for disposal of toxic materials; and (5) requiring that pits be reclaimed without breaching the liner unless site conditions minimize the potential for contamination, and requiring that a bentonite cap be placed over buried drilling wastes to minimize potential for leachate movement into groundwater.

An important aspect of pit reclamation is the length of time a pit is allowed to dry out before it is filled in, particularly in situations where the muds will be buried in the pit at the time the site is reclaimed. The Board could consider developing criteria or guidelines for these decisions because no single set of requirements or time limitations would be appropriate for all drilling locations.

Health and Safety Considerations. Major accidents such as well blowouts and pipeline ruptures are extremely rare. Comprehensive procedures and equipment are proven and available to ensure proper control of wells during both the drilling and production phases, and to protect the health of workers and the general public. The American Petroleum Institute, Bureau of Land Management, and Alberta have published information regarding measures and equipment to guard against major accidents.

The Board's current rules addressing well control equipment require that in proven (producing) areas the use of blowout prevention equipment must be in accordance with established practice, and that in unproven areas the equipment must include a master gate or its equivalent, an adequate blowout preventor, and choke and kill line(s) of proper size and working pressures.

The current rules could have criteria added to assist oil and gas operators in selecting equipment appropriate for working pressures and other site-specific conditions that may be encountered. Criteria could be added to define what constitutes "established practice" in an area, or, alternatively, what should be done if the operator's inquiries turn up potentially conflicting answers. API standards and guidelines identify minimum requirements for the appropriate level of site planning, employee training, special equipment, special operational procedures, and emergency response planning to protect the public.

The Board could establish criteria to be used to determine which proposed wells should have emergency contingency plans. The Board could take the further step of developing a model contingency plan that would suffice for most locations but that could be modified as necessary to accommodate special concerns or circumstances at individual drilling sites.

Site Reclamation. The Board's rules currently require that drilling sites must be returned to their previous grade and productive capability, and that measures must be taken at the time of abandonment to prevent adverse hydrological effects from plugged wells unless the surface owner agrees in writing, with the approval of the Board or its representative, to a different plan of restoration. According to the Board's field inspection staff, oil and gas operators usually confer with landowners or determine on their own how best to comply with this rule. While a Board inspector may be asked to give advice concerning appropriate reclamation procedures or seed mixtures used to revegetate disturbed areas, the inspectors usually are involved primarily in site inspections after reclamation efforts have been undertaken. If problems are discovered the inspector notifies the operator or dirt contractor that further work is needed.

Some steps or activities used for successful reclamation of drill sites and access roads include stockpiling and replacement of topsoil; ripping compacted soil to a depth sufficient to promote new root growth; appropriate choice of seed mixtures; the addition of mulch, fertilizers, or implementation of other measures as necessary to encourage revegetation; stabilization of slopes, stream banks, and other areas that may be particularly susceptible to erosion or failure.

There are methods for accomplishing satisfactory reclamation of most soil types and landforms in Montana. Many of these methods have been tested and established over the years by land management agencies, other units of government with regulatory responsibility for various types of projects and activities that disturb the land surface, and industry practice. Information about these methods is available through DSL, DNRC, and federal agencies.

The Board could develop guidelines or a model plan for reclamation of oil and gas drilling locations, or it could specify preferred practices by policy or rule. Rather than attempting to incorporate specific measures that would be required for individual soil types and landforms of Montana, guidelines could concentrate on establishing minimum acceptable practices or procedures. For sensitive sites that might pose special problems for successful reclamation, site-specific measures could be identified at the time that individual drilling permits are issued or at the time that the first site inspection is made. Landowners or companies who wish to deviate from the guidelines on a site-specific basis could do so with the approval of the Board or its representative in a manner similar to that contemplated by the Board's existing rule. Conversely, the guidelines could be written to apply primarily where a landowner does not have a preference for any particular measures.

Alternatively, the Board could require oil and gas operators to include a proposed reclamation plan with each individual drilling permit application. Either of these alternatives would help ensure reclamation success and might re-

duce costs by minimizing the likelihood of inappropriate choices when site abandonment efforts are undertaken.

Air Quality Considerations. During drilling operations, nitrogen dioxide and carbon monoxide could be emitted at levels that trigger the need for an air quality permit, primarily in situations where rigs with 1500-2000 horsepower engines are used for periods of three months or longer. When the Board reviews the drilling permit application for these types of operations, it could request the Air Quality Bureau to review the project or could advise the oil or gas operator to contact the AQB.

PRODUCTION PHASE

Produced Water Evaporation Pit Design and Reclamation. The Board's rule concerning produced water evaporation pits requires that such pits may only be used when the site is "underlaid by tight soil such as heavy clay or hardpan." The rule also contains a prohibition against impoundment of "salt or brackish water" where the soil under the pit is "porous and closely underlaid by a gravel or sand stratum." This rule could provide further guidance for oil and gas operators to follow in judging when natural soil conditions are sufficiently impermeable to prevent seepage or when gravel or sand stratum are close enough to the pit bottom to potentially contribute to a contamination problem. Also, requirements for reclamation or ultimate disposal of unevaporated fluids remaining in the pit could be addressed.

Another portion of the Board's rule stipulates that operators must prohibit produced water from escaping over adjacent land or into streams. This rule could provide guidance concerning the size of the pit relative to production volumes and length of time the water would be stored, with further guidance concerning the need for and capacity of dikes or other measures to keep fluids from escaping and to divert surface runoff from the overall well site.

If the terms "salt or brackish water," "clay," and "hardpan" are retained, the Board could define them in order to provide precise guidance concerning the chemical composition of the water that causes it to be classified as either salt-water or brackish, and to establish an impermeability standard that could be used to judge the acceptability of clay or hardpan for siting an evaporation pit. Alternatively, the Board could consider requiring a special permit for construction of evaporation pits or banning the use of these pits if the produced water has concentrations of sodium chloride or TDS above a certain level. The Board also could consider selectively banning surface pits in areas of the state where surface or groundwater is of relatively high quality. In North Dakota where most produced water is salty, the oil and gas agency has taken the step of banning produced water pits.

Another alternative would be to allow operators to install plastic liners in pits that would contain salt or brackish water in areas where naturally occurring subsoils do not meet

impermeability criteria. Technical Appendix 3 of the draft PEIS contains an example of guidelines developed by the New Mexico Oil Conservation Commission for the installation of pit liners. Oil and gas operators are expected to apply these guidelines unless they can demonstrate that a different method or procedure would accomplish essentially the same objectives.

Based on the analysis in Chapter Four of the draft PEIS, the environmentally preferred method of disposal of produced water is by underground injection, unless the quality of the water is equal to or better than the water on the surface or in shallow aquifers naturally occurring in an area. The water quality impact analysis and information provided by Board field staff indicate that in some producing areas of Montana the produced water is of lesser quality than surface- or groundwater, but there are not enough disposal wells to accommodate the volume of water produced, particularly in the older producing fields. While there are secondary recovery/waterflood operations in these areas, these operations do not normally accept produced water because it may contain bacteria that could interfere with the water flood operations. The Board could consider establishing a review and permitting process for commercial surface water disposal facilities, either on its own or in conjunction with the Department of Health and Environmental Sciences. This option also could include disposal of drilling muds and mud solids as an alternative solution for areas of the state where other acceptable waste disposal options are limited. However, this option would likely require involvement of the Solid and Hazardous Waste Bureau and the development of specific procedures and requirements for timely siting and licensing of such facilities.

Air Quality Considerations. The primary air pollutants emitted during production operations in quantities that could violate air quality standards are hydrogen sulfide and sulfur dioxide. The Board's rules allow flaring of an average of 100,000 cubic feet of gas per day when it is not economical to market the gas. The analysis in Chapter Four of the draft PEIS indicates that wells that flare gas containing 1 percent hydrogen sulfide require an air quality permit (for sulfur dioxide emissions) if they are flaring up to the limit of the Board's rule. Wells flaring smaller quantities of gas with higher concentrations of hydrogen sulfide also could require a permit in some cases. Hydrogen sulfide may be emitted to the atmosphere through accidental or temporary venting, through incomplete combustion during flaring, and through fugitive or breathing losses from storage tanks, pipelines, pumps, seals, and other equipment. Besides the flaring, gas also may be burned on site to fuel heater treater units, separators, compressors and ancillary equipment. All of these activities contribute to the total load of sulfur dioxide emissions produced at a site.

The Board could consider establishing a joint process with the Air Quality Bureau to determine which oil or gas wells may produce enough of these pollutants to trigger the

need for an air quality permit or to violate ambient air quality standards. The analysis in Chapter Four of the draft PEIS discusses several options for a screening process that would allow the Board to identify the wells. The main information needed is the concentration of hydrogen sulfide in the gas, the flow volume of the well, and the volume of gas being vented, flared, or used on site. The Board could consider adopting a rule to require operators to submit gas analysis data at the time that production begins for each well that produces any quantity of hydrogen sulfide gas.

The Board also could consider establishing criteria or a system for analyzing the gas analysis data and other factors to determine which new production wells are likely to require an air-quality permit or which wells should be analyzed in more detail to determine the potential for air quality problems. The Bureau of Land Management considers the gas emission rate, the distance downwind from a well site to Class I or II air quality areas, and whether the well (individually or in combination with other wells in an area) would exceed PSD (prevention of significant deterioration) increments or qualify as a PSD source.

When a drilling permit application is reviewed, the Board could consider the proximity of other wells and whether they are venting or flaring hydrogen sulfide, and also consider the proximity of residences or any designated areas where a reduction in air quality would either be prohibited or would have the potential to create special problems. Data of the production and gas analysis from other wells in the vicinity or producing from the same target formation(s) could also be evaluated to determine whether a proposed well would have the potential to produce either volumes or concentrations of hydrogen sulfide that would cause problems. If the Board were to begin collecting gas analysis data, this information could be incorporated in a data base for use by either the Board, the Air Quality Bureau, or both agencies in analyzing the potential for air quality problems when new wells are proposed. With this information the Board and the Air Quality Bureau would have an enhanced ability to identify wells where venting or flaring should be limited, where air quality monitoring should be done, where special equipment or operating procedures may be necessary to reduce hydrogen sulfide emissions to acceptable levels, and, in rare cases, where it may be impossible to operate a well without violating ambient air quality standards. In these situations, it would be desirable to discover the problem as early as possible. The Air Quality Bureau and the Board could cooperatively evaluate individual wells that could cause air quality problems, particularly in complex situations where the potential need for monitoring or special operating constraints to reduce hydrogen sulfide is unclear.

Another option the Board could consider is a prohibition on flaring at wells that produce gas containing any quantity of hydrogen sulfide until analyses are performed to determine the specific amount that can be flared without violating air quality standards. The amount of flaring that is ultimately

allowed could vary depending on mitigating measures implemented to limit emissions. Consultation between the Board and the Air Quality Bureau may be especially warranted when an operator applies to the Board for a variance to allow flaring in quantities greater than the 100,000 cubic feet per day average. Where several production wells are jointly contributing to a problem situation, the Board could consider working jointly with the Air Quality Bureau to develop an emission abatement plan.

BOARD REVIEW OF DRILL PERMIT APPLICATIONS

In order for the Board to promptly evaluate the potential environmental impacts associated with individual drilling proposals, certain information concerning the nature of the individual projects and their proposed locations would be required. As discussed in Chapter Four of the draft PEIS, the amount of information, level of analysis, and amount of time required to perform an environmental review for any given drilling proposal may vary within regions, primarily depending on the characteristics of the location where drilling is proposed, the location's proximity to existing wells or fields, and other factors as discussed below.

As a result of the Board's evaluation of an individual drilling proposal, special stipulations or conditions might be attached to the drilling permit in order to mitigate specific adverse environmental impacts associated with a particular location. In all cases, the Board would assume that drilling and any subsequent production operations would proceed in compliance with Board rules. As discussed previously in the preceding subsections, certain revisions or additions to the Board's rules would be effective in addressing many potential impacts to air and water quality, safety, and site reclamation, thereby reducing the need to examine these issues in detail on a site-specific basis.

Figure 47 identifies in chronological order the steps that may be necessary to accomplish environmental review of drilling proposals with varying levels of complexity and potential environmental problems. Table 41 outlines possible levels of analysis that might be required to adequately identify potential environmental impacts associated with different types of drilling proposals and locations. Estimates of the average percentage of wells likely to qualify for a particular level of review also are presented, based on the characteristics of well proposals received by the Board. Estimates of the time required for the Board to complete each level of review also are included in the table. Figure 47 includes the levels of review that are described in Table 41. As indicated on Figure 47 and as discussed further below, more detailed review (e.g. levels II and III) would be applied to progressively more complex drilling proposals and locations. However, as shown by the dotted lines between the levels on the chart, any given drilling project could potentially qualify for a lesser level of review or a higher level, depending on site-specific characteristics.

FIGURE 47
ENVIRONMENTAL REVIEW PROCESS
FOR OIL AND GAS WELLS

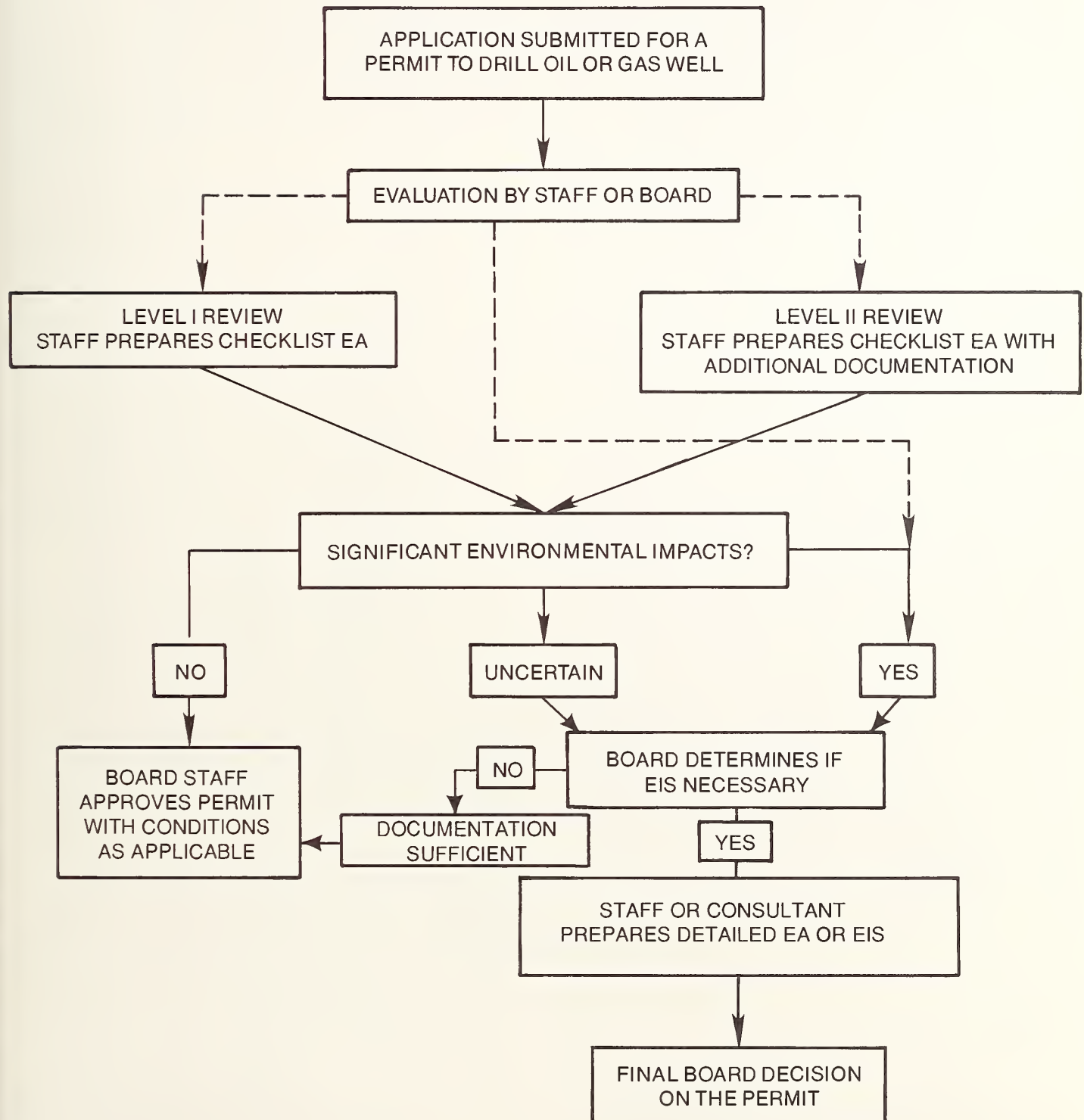


TABLE 41
LEVELS OF ENVIRONMENTAL REVIEW FOR OIL AND GAS WELLS

Possible Levels of Board Review	Administrative Components	Examples of Possible Well and Site Characteristics that Define this Level of Review ¹	Estimated Annual Percent of Wells Likely to Qualify for this Level of Review ²	Estimated Time Required by Board to Complete Permit Process ³
LEVEL I Standard Drilling Operation	a) Operator submits drill permit application form and supplemental information. b) Staff prepares checklist; c) Staff may attach permit conditions.¹	a) drilling and waste disposal plans are clearly in compliance with Board rules. b) Adequate data is available to allow the staff to identify possible problems and effective mitigating measures based on a brief desk review.	85% - 90%	1 - 2 days
LEVEL II ⁴	a) and b) same as Level I c) Staff consultation with other agencies d) Staff may determine that documentation in addition to the checklist is necessary to explain its decision and any mitigating measures that are deemed necessary. e) Staff will likely attach site-specific permit conditions, which could include a special stipulation that discovery of a commercially producible reservoir will necessitate further environmental review before further development may proceed	a) Specific characteristics of target formation(s) may be uncertain or unknown; b) Sensitive environmental features or constraints present; interagency consultation is necessary to identify environmental impacts and appropriate mitigation.	9% - 14%	10 - 30 days ⁵
LEVEL III ⁴	Board determines that a detailed environmental assessment or environmental impact statement is necessary, involving extensive interagency consultation, site-specific field study, and inter-action with the applicant.	Sensitive environmental features are present; serious environmental problems could occur; more detailed information and analysis needed.	1%	6 months - 1 year

¹ Compliance with applicable, revised Board rules is assumed for all drilling operations.

² If the Board defers to environmental review conducted by other agencies when drilling occurs on federal or state-owned land or minerals, these wells would be excluded from the estimates.

³ The estimated time requirements are based on the following assumptions: (a) that the Board has developed rules/guidelines specifying minimum acceptable practice for drilling and production operations; (b) that the information described in Figure Application Form is readily available; (c) for Levels II and III that the Board has established consulting relationships with other agencies; and (d) that the Board has adequately trained staff and that the workload allows staff to begin review the same day an application for a permit to drill is received.

⁴ The primary difference between Levels I and II is the amount and quality of information available and the level of uncertainty about whether adverse environmental impacts would occur. The likelihood that Level II or Level III review would be necessary is primarily based on the types and number of sensitive environmental features in an area and the seriousness of environmental impacts that are considered likely to occur.

⁵ If interagency consultation can be accomplished by telephone, the time required for review could potentially be reduced to 2 or 3 days. The estimates assume that procedures would be established to ensure timely response to Board requests for consultation. If there are interagency disagreements about the nature of environmental impacts, mitigation, and strategies to address problems, additional time would likely be required to complete the permitting process.

LEVEL I EVALUATION OF DRILLING PROPOSALS

The types of information needed to promptly evaluate individual drilling proposals involve important tradeoffs among the following considerations: (1) ensuring that environmental resources are adequately identified and that sufficient information exists to evaluate potential impacts; (2) ensuring that any extra expense and time required of oil and gas operators to mitigate environmental impacts are imposed only at locations where problems would otherwise be likely to develop; and (3) ensuring that the extra expense and time required for operators to supply information is fairly and reasonably allocated, and focused to the greatest extent feasible on operations and locations where environmental problems are most likely to occur.

The term "categorical exclusion" is included in new revisions to the MEPA rules. As used in these rules, categorical exclusion refers to a type of agency action that the agency has determined could not individually, collectively, or cumulatively result in significant impact on the quality of the human environment. The action is therefore categorically excluded from additional environmental review. Categorical exclusions are usually established through rule making and may be based on supporting studies that establish the reasons a particular action would not create significant impacts. Under the rules, a categorical exclusion does not exempt the action from complying with MEPA, but removes, except for extraordinary circumstances, the requirement that an environmental assessment or environmental impact statement be prepared.

While the Board could consider the use of categorical exclusions in its drill permitting process, this option would not eliminate the need for sufficient information from operators to document that a particular drilling project qualifies for the exclusion. As discussed below, the administrative steps included in a "Level I" review may represent the minimum level of documentation likely to be necessary for evaluation of standard drilling operations. As noted in Chapter Four of the draft PEIS, it is not possible for the staff to predetermine that drilling operations have no significant impacts without some type of case-by-case evaluation.

Eighty-five percent or more of drilling operations are likely to qualify for Level I review (see Table 41). Under Level I review, it is assumed that accurate information about both the surface and sub-surface is readily available for a proposed drilling operation, and that no unusual circumstances would raise questions about its ability to comply with applicable Board rules. The steps to complete a Level I review would include a desk review of data, preparation of a brief environmental checklist (see later discussion), and, if necessary, attachment of special permit conditions to address environmental problems. The time necessary to complete these administrative tasks normally would not exceed two days.

The types of information and level of site-specific detail needed to evaluate the environmental impacts of a drilling proposal depend at least partially on decisions the Board makes concerning adoption of new rules. For example, if the Board defines minimum acceptable practices, it probably would not be necessary for operators to submit site-specific construction and reclamation plans unless sensitive resources would require special measures in addition to the minimum practices. It should be noted that the technical mitigation measures discussed in Chapter Four of the draft PEIS are examples of strategies that may be effective in addressing special problem situations.

Another Board decision that will affect the amount and types of information that must be reviewed concurrently with drill permit applications is whether the Board will determine the necessity of pit liners for each individual drilling operation, or whether pit liners would be automatically required by rule for some drilling operations, such as those that use salt-water-based drilling muds. The Board also could rely on a combination of these options. For example, if a freshwater drilling operation is proposed at a site with relatively impermeable soils and a deep water table, a pit liner might be unnecessary. However, if the same operation were proposed at a site overlain by glacial till and located near the headwaters of a stream, a pit liner might be needed. Either some level of site-specific data would be needed for the Board to make this determination, or the Board's rules would need to clearly identify the circumstances where liners are necessary. A key issue is how the Board can most efficiently obtain the information needed to ensure that the rules are appropriately applied.

Persons desiring to construct an earthen reserve pit in Wyoming must obtain a special permit from the Wyoming Oil and Gas Conservation Commission. The permit usually is issued along with or at approximately the same time as the drilling permit. The form (see Technical Appendix 3) requires applicants to describe the proposed mud program, the design of the pit and type of sealing material to be used, the subsoil type, the drainage distance to the closest fresh surface water, the period the pit would be in use, and the plan for final disposal of the pit contents. An analysis of the water/fluid that would be placed in the pit also must be submitted. Wyoming and New Mexico have similar forms that must be filed by persons proposing to construct produced water pits.

Alternatively, the Board could decide to require pit liners for all drilling operations unless the operator submits site-specific data showing why the Board should grant a variance. If pit liners were automatically required, site-specific information concerning soil type and depth to groundwater might not be needed.

Figure 48 is a sample form that outlines the information the Board is likely to need from oil and gas operators to evaluate the potential environmental impacts of a drilling proposal. The requested information includes a description

of the drilling operation, and certain characteristics of the location and surrounding area.

Figure 48 and other figures described in this chapter are draft examples of an application form or checklist that could be used to fulfill the objectives of Senate Bill 184. These examples are provided to help illustrate how to integrate MEPA into the Board's drill permit process. The Board may adopt or modify the application forms, but such formal action would only occur following notice at a later date.

Some of the environmental impacts that may be associated with oil and gas drilling and production may be most appropriately addressed by the Board through revision of its rules as discussed earlier in this chapter. Examples include most of the water quality-related impacts, health and safety considerations, some of the air quality impacts, and most concerns relating to site construction and reclamation. The other categories of impacts, including wildlife, recreation, aesthetics, land use, cultural resources, and socioeconomic considerations, may not lend themselves as readily to a rule-oriented approach for either analysis purposes or for impact mitigation. However, the Board could consider addressing these topics through rules directing operators to avoid sensitive environmental features wherever possible and requiring site-specific evaluation if avoidance is not possible.

The Board may find it necessary to supplement the location-related information provided by operators in drilling applications in order to evaluate potential environmental impacts. Options for obtaining this information include: (1) establishing and maintaining an in-house data base system and maps at the Board's office; (2) obtaining data and other information through consultation with other agencies of state, federal, and local governments having jurisdiction or expertise concerning a particular geographic area or type of environmental resource; (3) reliance on the Montana State Library, Natural Resource Information System data base; (4) personal knowledge of Board staff; (5) consultation with affected landowners; and (6) pre-drill site inspections when warranted. The Board's selection of the best option or combination of options for obtaining necessary information should be based on considerations of efficiency and effectiveness, and the three primary trade-offs identified at the beginning of this subsection.

Much of the information necessary for evaluation of drilling proposals is readily available in both published and unpublished reports and maps produced by various state and federal agencies. However, the quality and level of specificity of published data varies considerably. For example, the geologic and soils maps of Montana produced by the Soil Conservation Service and the Montana Bureau of Mines and Geology generally indicate the dominant soil type and surficial geologic characteristics for a given area, but do not note smaller locations where deposits of a different soil type or geologic unit may exist within the mapped area. These different deposits could have a major influence on the time and

expense required to properly site and construct a reserve pit if, for example, an operator had a choice between placing the pit either over relatively deep but porous soil or in porous but shallow soils over an impermeable clay subsoil. The difference in soil types and surficial geologic materials might not be discovered unless the operator submits appropriate descriptive data or unless the Board's staff, the landowner, or other persons familiar with the characteristics of a proposed drilling location are able to supplement and clarify the written or mapped data. Consultation and personal contact with knowledgeable individuals may be the most efficient and effective option for verifying data and gaining an accurate understanding of the environmental resources of an area. Site inspections also may be necessary in some cases. These steps are especially integral to the more detailed levels of review (Levels II and III) where the presence of sensitive environmental features and uncertainties in available data require more effort to identify potential environmental problems.

LEVELS OF REVIEW II AND III.

The principal difference that distinguishes Level II and III review from Level I review is the amount and quality of information describing the surface and sub-surface characteristics of a drilling location, and the level of uncertainty concerning whether adverse environmental impacts would be likely to occur. Also, there may be uncertainty about what mitigating measures would be most effective. The uncertainties associated with drilling in "new" areas some distance away from established producing wells are more likely to require interagency consultation to identify potential environmental impacts. Proposals requiring more extensive review (Level II) may also require more detailed documentation of the staff's analysis and resulting permit conditions than would normally be included in an environmental checklist. This subject is discussed further in the following section on evaluation of environmental impact. The success and timeliness of interagency consultation depends to a large degree on whether the staff and the other involved agencies agree on both the procedures to be followed when the staff requests assistance and on the level of detail needed to respond to a request.

Level III is the most detailed level of review. It is reserved for proposals deemed likely to cause significant environmental impacts. This level of review would include extensive interaction between the applicants, the Board, and other affected parties. It would culminate in the preparation of either a detailed environmental assessment or environmental impact statement.

Except for situations where the nature of a drilling proposal and the presence of sensitive environmental features clearly and immediately indicate a need for detailed analysis (i.e. Level III review), all drilling proposals would receive the same initial evaluation, with the preparation of an environmental checklist (see discussion in following subsection).

Submit in quadruplicate to:
Montana Board of Oil and Gas Conservation
 Billings or Shelby

Hole size	Casing size	Weight/foot	Grade (API)	Depth	Sacks of Cement	Type of Cement

Describe or attach labeled diagram of blowout preventer equipment. Describe mud program or indicate if air drilled.

Date _____

Conditions of Approval

Dry, washed cut delivered prepaid to:
BOARD OF OIL AND GAS CONSERVATION
2535 St. Johns Avenue
Billings, MT 59102

Supplementary Information

Note: Information or attachments in addition to this supplement may be required by Rule or by special request.

1 Please attach a topographic or equivalent map of the area showing: the well location, access route from county or other established roads, nearest fresh water streams, lakes ponds, springs, etc.

2 If there are any water wells within 1/2 mile of the location, please label water wells on the map and indicate approximate depth if available, or give location and depth below.

Location(s): _____ Depth: _____

3 Please attach a sketch of the well site showing approximate dimensions and orientation of the site, size and location of pits, topsoil stockpile, and estimated cut /fill at the corners and centerstake. (Note: sketch may be hand drawn and need not be done by an engineer or surveyor).

4 Will the reserve pit be lined ?

Yes ☐ Please describe lining/sealing material and thickness.

No ☐ Please explain below or attach separate report.

5 Does construction of the access road or location, or some other aspect of the drilling operation require additional state or federal permits? Please indicate below:

☐ No additional permits needed

☐ Stream crossing permit (apply through county Conservation District)

☐ Air quality permit (may be required if drilling time exceeds 90 days and total engine horsepower exceeds 1500hp)

☐ Water use permit (for groundwater withdrawals exceeding 100gpm)

☐ Federal drilling permit

☐ Other state or federal permit: (specify)

BOARD EVALUATION OF ENVIRONMENTAL IMPACTS

With the information concerning the drilling operation and the proposed location as described in the previous subsection, the Board would be prepared to determine whether an individual drilling proposal would be likely to have a significant impact on the quality of the human environment, and could identify mitigating measures that could be taken to reduce or avoid the impacts. The Board also could use the information to fulfill MEPA's requirement for interdisciplinary review of proposed actions.

It is important to distinguish between the information the Board would collect to evaluate impacts and the evaluation itself. For example, maps, consultation with various agency personnel, and other data may indicate the presence of a number of sensitive environmental features in the vicinity of a drilling site. The purpose of the evaluation is to determine whether conditions warrant further investigation or analysis and whether the proposed drilling and production would be likely to have a significant impact. The presence of a sensitive environmental feature signals the possibility of adverse impacts, but the evaluation may reveal that problems either would not be likely to occur or that the problems can be mitigated by modifications in the way the drilling or production operation is conducted.

The Montana Environmental Policy Act is the basis for the Board's obligation to integrate use of the natural and social sciences and environmental design principles in planning and decision making and to consider the environmental consequences of actions and proposed projects under its jurisdiction, including determining the significance of impacts of drilling proposals. Over the years that MEPA has existed, state agencies have developed both formal and informal procedures for making the significance determination and recording the results. State agencies use the "preliminary environmental review" (PER)—in new MEPA rules this document would be a type of "environmental assessment" known as an EA—to document their predictions of impact significance and to fulfill their other MEPA responsibilities. For projects or types of actions that normally are not expected to have significant environmental impacts, the PER or EA is a brief checklist.

Figure 49 is an example of a checklist that the Board could consider adopting for use in evaluating the impacts associated with drilling. This type of checklist could be prepared for projects that receive Levels I and II review. As noted in Table 41, Level II could involve additional analysis and documentation for more complex projects that do not warrant Level III review. The sample checklist is specifically tailored to identify the impacts of drilling and production operations in the context of the type of well being drilled and the various natural and cultural resources that may be present. The checklist requires the evaluator to decide whether a

particular impact would be likely to occur, whether it would be major, moderate, or minor, and whether options are available and necessary to reduce the adverse effects.

Because MEPA does not define the term "significant," state agencies, over the years, have developed their own internal processes and considerations for making this judgment. The administration has recently adopted new rules implementing MEPA which, for the first time, describe the criteria most state agencies have been using to evaluate the significance of impacts on the quality of the human environment. These criteria are as follows:

- 1) the severity, duration, geographic extent, and frequency of occurrence of the impact;
- 2) the probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance, considering the severity of an impact, that the impact will not occur;
- 3) growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;
- 4) the quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources or values;
- 5) the importance to the state and to society of each environmental resource or value that would be affected;
- 6) any precedent that a proposed action might set that would tend to commit the agency to future actions with significant impacts, or a decision in principle about such future actions; and
- 7) potential conflict with local, state, or federal laws, requirements, or formal plans.

The impact analysis in Chapter Four of the draft PEIS, and the general conclusion that most drilling operations are not likely to result in significant impacts on the quality of the human environment when reasonable mitigation is applied, are based on these criteria. This conclusion assumes the short-term, localized nature of the impacts when drilling does not discover commercially producible oil or gas and when all aspects of the operation conform to Board rules and guidelines, and use of available mitigating measures that are effective in reducing drilling impacts in sensitive locations that contain fragile or unique resources. If adequate information is available concerning a proposed drilling operation and its location, preparation of the checklist would not be a time-consuming element of the Board's environmental review process. Inadequate data, the likelihood of potentially serious environmental problems, and the complexity of mitigating measures are the most likely factors to increase the amount of time required to complete review for a drilling proposal.

Once the Board determines the approach it will take to establish its environmental review process, some period of time likely will be needed to establish a data base, collect maps, develop new rules/guidelines, establish consulting

FIGURE 49 ENVIRONMENTAL CHECKLIST FOR OIL AND GAS WELLS

Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: _____
Well Name/Number: _____
Location: _____
County: _____, MT; Field (or Wildcat) _____

Air Quality

(possible concerns)

Long drilling time _____
Unusually deep drilling (high horsepower rig) _____
Possible H₂S gas production _____
In/near Class I air quality area _____
Air quality permit for flaring/venting (if productive) _____

Mitigation:

___ Air quality permit (AQB review)
___ Gas plants/pipelines available for sour gas
___ Special equipment/procedures requirements
___ Other: _____

Comments: _____

Water Quality

(possible concerns)

Salt/oil based mud _____
High water table _____
Surface drainage leads to live water _____
Water well contamination _____
Porous/permeable soils _____
Class I stream drainage _____

Mitigation:

___ Lined reserve pit
___ Adequate surface casing
___ Berms/dykes, re-routed drainage
___ Closed mud system
___ Off-site disposal of solids/liquids (in approved facility)
___ Other: _____

Comments: _____

Figure 49 (continued)

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings _____
High erosion potential _____
Loss of soil productivity _____
Unusually large wellsite _____
Damage to improvements _____
Conflict with existing land use/values _____

Mitigation

___ Avoid improvements (topographic tolerance)
___ Exception location requested
___ Stockpile topsoil
___ Stream Crossing Permit (other agency review)
___ Reclaim unused part of wellsite if productive
___ Special construction methods to enhance reclamation
___ Other _____

Comments: _____

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences _____
Possibility of H2S _____
Size of rig/length of drilling time _____

Mitigation:

___ Proper BOP equipment
___ Topographic sound barriers
___ H2S contingency and/or evacuation plan
___ Special equipment/procedures requirements
___ Other: _____

Comments: _____

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified) _____
Proximity to recreation sites _____
Creation of new access to wildlife habitat _____
Conflict with game range/refuge management _____
Threatened or endangered Species _____

Mitigation:

___ Avoidance (topographic tolerance/exception)
___ Other agency review (DFWP, federal agencies, DSL)
___ Screening/fencing of pits, drillsite
___ Other: _____

Comments: _____

Figure 49 (continued)

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites

Mitigation

___ avoidance (topographic tolerance, location exception)

___ other agency review (SHPO, DSL, federal agencies)

___ Other: _____

Comments: _____

Social/Economic

(possible concerns)

___ Substantial effect on tax base

___ Create demand for new governmental services

___ Population increase or relocation

Comments: _____

Remarks or Special Concerns for this site

Summary: Evaluation of Impacts and Cumulative effects

I conclude that the approval of the subject Notice of Intent to Drill (does/does not) constitute a major action of state government significantly affecting the quality of the human environment, and (does/does not) require the preparation of an environmental impact statement.

Prepared by: _____ (title:) _____ Date: _____

Other Persons Contacted:

_____ (Name and Agency)	_____ (subject discussed)	_____ (date)
_____ (Name and Agency)	_____ (subject discussed)	_____ (date)

If location was inspected before permit approval:

Inspection date: _____ Inspector: _____

Others present during inspection: _____

relationships with other agencies, train staff, and to explain the process to oil and gas operators and landowners.

If the Board decides to use a checklist to document its environmental evaluations, it may wish to advise the staff on the assumptions and approach to be used in filling out the checklist. Some of the considerations include: (1) determining what type of study, if any, is warranted by a lack of site-specific information or the potential for environmental problems; (2) determining whether to omit some categories of impacts from the checklist because individual drilling projects seldom or never cause those impacts; (3) determining whether impacts associated with production rather than drilling should be included in the checklist evaluation, and if so, deciding how they should be treated; and (4) determining how mitigation and assumptions about compliance with the Board's rules should be reflected in the checklist. The following discussion explores these issues further.

When a checklist is prepared, the staff would have to decide whether the information available is adequate to immediately complete the checklist, or whether circumstances warrant further study. The staff's personal familiarity with various geographic areas of the state is likely to be important in judging whether the available information is sufficient for evaluation of possible impacts. Also, if the Board favors collection of relevant published data and establishment of an in-house data base, the staff's ability to conduct desk reviews of drilling applications would be enhanced.

Consultation with staff of other agencies having expertise in resource areas such as water, wildlife, and soils would probably be the most effective method of resolving questions about sensitive environmental features and whether any serious problems are likely to occur as a result of drilling or production. Only when these inquiries fail to generate satisfactory answers would further site-specific investigation become necessary.

The analysis in Chapter Four of the draft PEIS indicates that individual drilling projects will seldom or never cause certain types of impacts. Some examples include economic and public service impacts. Activities extensive enough to trigger these impacts generally are associated with cumulative aspects of development. Therefore, if these categories of impact are included on a checklist, the evaluator

would, in most instances, probably check the columns marked "none" or "minor." The argument that favors leaving these categories on the checklist is that they would then be formally considered and documented along with the rest of the impact evaluation.

A related issue concerns categories of impact that rarely would be considered issues for drilling operations but which would be matters of concern if the drilling is successful and production follows, particularly in locations not adjacent to wells or fields. Some examples are recreational areas and facilities or cultural/historic properties which might be subjected to minor impacts during drilling but would suffer long-term impacts if drilling were successful and production were to result. The question in this context is how the possible production impacts should be evaluated in the checklist and what measures should be taken or committed to, if any, to address the production-related issues when the drilling permit is approved.

The sample checklist attempts to address these concerns in two ways. The issues related to production from the individual well, if drilling is successful, would be considered when completing the checklist. Reasonably foreseeable cumulative impact issues would be disclosed by indicating potential impacts if additional wells were drilled in the area. This approach would allow disclosure of possible cumulative impact issues associated with a new field but recognize that field development occurs on a well-by-well basis.

The Board could consider several options for determining how the checklist evaluation should reflect mitigation and assumptions about compliance with Board rules. The most basic issue is whether staff should be instructed to determine the level of impact assuming no special precautions were taken to prevent a particular type of environmental problem or to determine the impact level considering that a certain mitigating measure is taken, and then cite the applicable Board rule, or otherwise record on the checklist what mitigation would be necessary. The latter approach appears more consistent with discussion elsewhere in this chapter concerning the need for all drilling projects to comply with the Board's rules, especially if they are revised as discussed in the earlier section. The alternative assumption that there would be no mitigation or compliance with Board rules may be unnecessarily confusing and could produce misleading results.

BOARD RELATIONSHIPS WITH OTHER AGENCIES

This chapter refers repeatedly to Board consultation with various other agencies of state, federal and local government. The efficiency and effectiveness of the Board's environmental review process can be substantially enhanced by developing cooperative working relationships with other agencies that have jurisdiction or expertise concerning various environmental resources or geographic areas of

Montana. The state agencies the Board is most likely to work with include but are not limited to the Water Quality Bureau, Air Quality Bureau, Solid and Hazardous Waste Bureau (all three bureaus are part of the Department of Health and Environmental Sciences), Department of Fish, Wildlife and Parks, the Water Rights Bureau (Department of Natural Resources and Conservation), Department of State Lands, the

State Historic Preservation Office, the Natural Resource Information System in the State Library, and the Bureau of Mines and Geology.

Local and other units of government that may be able to assist the Board include county planners and sanitarians, Conservation Districts, and county weed control personnel. Numerous federal agencies are likely to have information that the Board may need, including the U.S. Forest Service, Bureau of Land Management, U.S. Environmental Protection Agency, Soil Conservation Service, and U.S. Fish and Wildlife Service.

The Board's current working relationships with many of these agencies are described in Chapter Two of the draft PEIS. For the most part, these relationships do not include the type of consultation discussed in this chapter except in problem situations where some type of complaint has been filed or an accident has occurred. The relationships that the Board could establish in the future include sharing of data and expertise, joint field inspections, and sharing or division of responsibilities.

A formal mechanism that agencies often rely on to define their relationship is a Memorandum of Understanding (MOU). The Board has an existing MOU with the Bureau of Land Management outlining how the Board's responsibility for issuing permits to drill is integrated with the BLM's responsibility for development of federal minerals. The Board could consider expanding this MOU to address how the Board would either integrate its environmental review process with the federal process conducted under the National Environmental Policy Act, or defer to the federal process by adopting environmental documents prepared by federal agencies. A similar MOU could be established with the U.S. Forest Service, and possibly also with the departments of State Lands, and Fish, Wildlife and Parks, for drilling operations on state-owned lands. Some of the topics that could be addressed by an MOU or other type of interagency agreement include procedures for ensuring timely response to Board requests for assistance, format of information requests

made by the Board to ensure adequate response, and procedures for resolving differences of opinion among agencies.

The Board appears to have several options to consider concerning the relationship it might establish with the Air Quality Bureau, Water Quality Bureau and possibly the Solid and Hazardous Waste Bureau. When a drilling or production operation requires an air, water or solid waste disposal permit, the oil and gas operator clearly needs to deal directly with the appropriate bureau. In situations where it is unclear whether a permit is needed, whether a problem exists, or whether the characteristics of a drilling location indicate a potential need for special drilling permit conditions to protect air and water quality, the Board's staff and DHES staff would need to work together. An unrealistic option that could be considered is assigning complete responsibility for air quality, water quality, and solid waste-related issues to one agency.

Since neither the Board nor DHES currently allocate staff time to analyze potential air, water or solid waste problems before a drilling permit is issued, it appears that both agencies may find it necessary to reassign or share staff. The latter option has been successfully pursued by the Department of State Lands and Water Quality Bureau for review of mining permit applications. Where both a mining permit and water discharge permit are needed the agencies retain their separate authorities, but the analysis of information is handled jointly. If this option is favored for oil and gas permitting, both the Board and DHES agency workload and budgets may increase.

For other agencies of state government, local government, and most federal agencies except BLM and USFS, the nature of their relationship with the Board is likely to be primarily consulting (sharing information, occasional joint site visits, development of suitable mitigation measures). Until the Board begins implementing its environmental review process, the level and volume of interaction is difficult to estimate. It also is important to note that the number of drilling permits the Board reviews can vary dramatically from year to year and that agency managers would need to adjust accordingly.

BOARD STAFFING AND BUDGET CONSIDERATIONS

The Board probably would have to add some staff to implement the environmental review process and to work with the oil and gas industry to achieve participation and compliance. As discussed in the previous subsection, the Board could consider sharing one or more staff positions with DHES. Also, existing staff may need training in conducting environmental reviews and field investigations. Another possible resource available to the Board for general environmental staff support could be found in DNRC, which assists other state agencies in the preparation of environmental documents. A combination of technical and managerial skills may be desirable if the Board favors the option of

adding new staff. Special attention would need to be given to defining how any new positions will relate to the field inspection staff.

Staffing implications accompany all the options the Board may consider for revision of its rules, for collecting information to evaluate drilling proposals, and for potentially adopting a classification system to assign certain types of drilling proposals to certain levels of environmental review. For example, if the Board favors the adoption of rules and guidelines that effectively predetermine the need for pit liners at certain drilling operations and minimum acceptable

practices for construction, reclamation, and waste disposal, less staff time may be needed. Conversely, however, new rules and guidelines are likely to increase the workload for the field inspection and enforcement staff. If the Board adopts an environmental review classification system that places a high percentage of drilling proposals in review levels I and II, the process will clearly require far less staff time than if all or most drilling proposals were to receive detailed, site-specific review. If such a system is applied to the present rate of drilling permit applications, staff requirements could range from one or two new positions to a dozen or more, primarily depending on how drilling proposals are assigned among the various possible levels of review.

Training and education of existing Board staff is a related consideration that is likely to require attention. Training could be accomplished by sending staff to workshops and

seminars on preparation of environmental review documents. This type of training is periodically offered by private consultants or sponsored by groups of state or federal agencies. Board discussions establishing cooperative and consulting relationships with other agencies also could include plans for bringing their staffs together both in the office and in the field to educate one another about their respective responsibilities and resource areas. State agency staff with experience in conducting environmental reviews under MEPA also could be requested to meet with the Board's staff on both a formal and informal basis, and to be available to answer periodic questions. Another option the Board could consider is contracting with other state agencies for staff assistance in performing environmental review for the relatively few drilling proposals likely to require such extensive study and documentation.

CHAPTER SEVEN

IMPLEMENTATION OF THE PEIS

This chapter presents the basic framework for the Board to begin implementing an environmental review process as required under Senate bills 184 and 201. It discusses the options the Board selected for its staff to use for complying with MEPA when reviewing individual applications to drill. Also included is a proposed schedule for adopting the

programmatic EIS, hiring necessary staff, and completing rule making to assist in streamlining the environmental review process for the majority of drilling proposals. Implementation would begin January 1, 1990, following Board adoption of the programmatic EIS, currently scheduled for December 28, 1989.

DESCRIPTION OF THE BOARD'S MEPA PROCESS

An environmental review checklist will be the main vehicle to demonstrate MEPA compliance for individual permits to drill. The checklist shown as Figure 49 in Chapter Six of this final PEIS will be completed by the staff for each well proposed on state and private land. Cooperative agreements will be established with BLM regarding environmental review requirements necessary for federal wells. Information to complete the checklist review will be supplied through the drill permit application (see Figure 48, Chapter Six) and from information collected and maintained by the Board's staff.

A three-level review process is envisioned, as discussed in Chapter Six of this final PEIS. Staff would have responsibility for completing Level One and Two reviews. The most detailed level of review, Level Three, would be required where the Board determined such detailed review was necessary on the basis of facts surrounding the individual drilling permit. Figure 47 in Chapter Six of this final PEIS summarizes how the environmental review process would work. Table 41 provides additional detail regarding the levels of review and the factors which would likely influence the level of review performed for various drilling applications. The Board's policy is that drill permit review be completed in the least time needed to adequately assess potential impacts and to identify any necessary permit conditions. To assist the review process, the Board will undertake rule revisions to establish conditions that would be used to address the most frequently occurring problems with drilling and production. A new staff position would be added to assist in the collection of in-house data, participate in the review of drilling permits, to begin rule revision efforts, and to address matters involving the environment as those matters pertain to the Board's operations.

Where necessary to complete its analysis, the staff would use predrill site inspections and consult with other agencies, landowners, and the companies. The staff would attach general and specific conditions to the drilling permit on the basis of problems identified through its review and as required by the circumstances surrounding the individual permits. In the event that agreement could not be reached between the staff and operator regarding the conditions for

drill permit approval, either the staff or operator could petition to the Board for a hearing on the matter.

Implementation of the procedures stipulated in the PEIS will require completion of several tasks that are now envisioned to occur in three phases.

PHASE I

Phase I would begin January 1, 1990. It involves primarily a change in internal procedures and policy, some limited rule making involving application forms and supplemental information, and gathering of basic environmental information and data which can be obtained without major expenditure of operating funds. This step in the implementation plan assumes initial MEPA review by the staff using the environmental checklist, and higher levels of review when necessary, as described in the final PEIS. This process would rely on current rules to the degree that they would be adequate to address any problems identified with an individual drilling proposal. Although the Board recognizes the benefits of rule making in streamlining the overall review process, effective rule making will require time beyond the January 1, 1990, starting date.

The Board's implementation efforts would be financed with funds remaining from the programmatic EIS effort, and money within the Board budget. Administrative support and assistance also would be available through DNRC.

Task 1. Beginning January 1, 1990, staff review of drill permit applications would be done using the environmental checklist to determine whether additional review is necessary and, if so, what level of review. The checklist would provide technical review of possible impacts and the adequacy of the operators' equipment/procedures. The checklist review would place less emphasis on impacts adequately covered by the programmatic EIS and greater emphasis on site-specific questions or problems that require more analysis.

Task 2. To assist the staff with the review process, the Board would hire an environmental coordinator and would establish working relationships with other agencies. An MOU would be written with BLM to address environmental review for federal wells. Other MOUs would be developed with state agencies if the need to establish formal working relationships is identified.

Task 3. The Board would notice and adopt by rule a new application form and supplemental information form to be completed by the operator when applying for a drilling permit.

Task 4. The staff would begin assembling in-house data bases for reference and use in evaluating permits to drill and as a source of information for industry use. These bases would include:

- source material for the environmental review process that can be easily acquired for little or no cost (e.g. copies of state and federal MEPA/NEPA documents).
- topographic map coverage of the state.
- information available from other agencies such as DFWP, SHPO, and DNRC on wildlife ranges and refuges; historical, archaeological, and paleontological resources; and water wells.

PHASE II

This phase of the implementation plan would run concurrent with Phase I. The lead in implementing Phase II would rest with the environmental coordinator hired by the Board.

Phase II of the implementation plan recognizes that rule making can be used to address many of the environmental problems of drilling and production identified in the programmatic EIS. Board rules reduce the time needed for impact review if they are designed to minimize potential impacts and provide for certain mitigating procedures or methods of operation. Adequate rules also allow implementation of environmental review within the regulatory framework, providing for staff review and approval of 98 percent of wells. Rule making would occur over a period of six months to one year.

Task 5. Based on the regulatory needs assessment in the programmatic EIS, the staff would initiate drafting, review, and proposal of new rules.

The following rule topics, discussed in more detail in Chapter Six of this final PEIS, were identified to help expedite environmental review of permit applications. Rule making would occur with input from industry and other interested parties.

- 1) Reserve Pit Construction and Lining
- 2) Exploration and Production Waste Disposal
- 3) Site Reclamation
- 4) Hydrogen Sulfide Safety
- 5) Spill or Leak Notification
- 6) Procedural Rules
 - application and supplementary information forms
 - permit processing
 - MEPA procedures
 - gas analysis data collection

The Board has determined siting and construction of access roads to be a subject for consideration in the permit review process but not a topic for rule making. It is the Board's position that resolution of access, road siting, and construction conflicts are best addressed through negotiations between the surface owners affected along the access road and the oil and gas operator, and that other laws and administrative rules adequately govern the subject.

Task 6: The MOU with BLM would be revised to provide a mechanism to coordinate and avoid duplication of environmental review for federal wells. The need for other MOUs would be assessed as part of continuing implementation efforts.

Task 7: A budget will be developed for inclusion in the regular budget presentation to the 1991 Legislature to address future operation or staff needs identified during initial implementation.

PHASE III

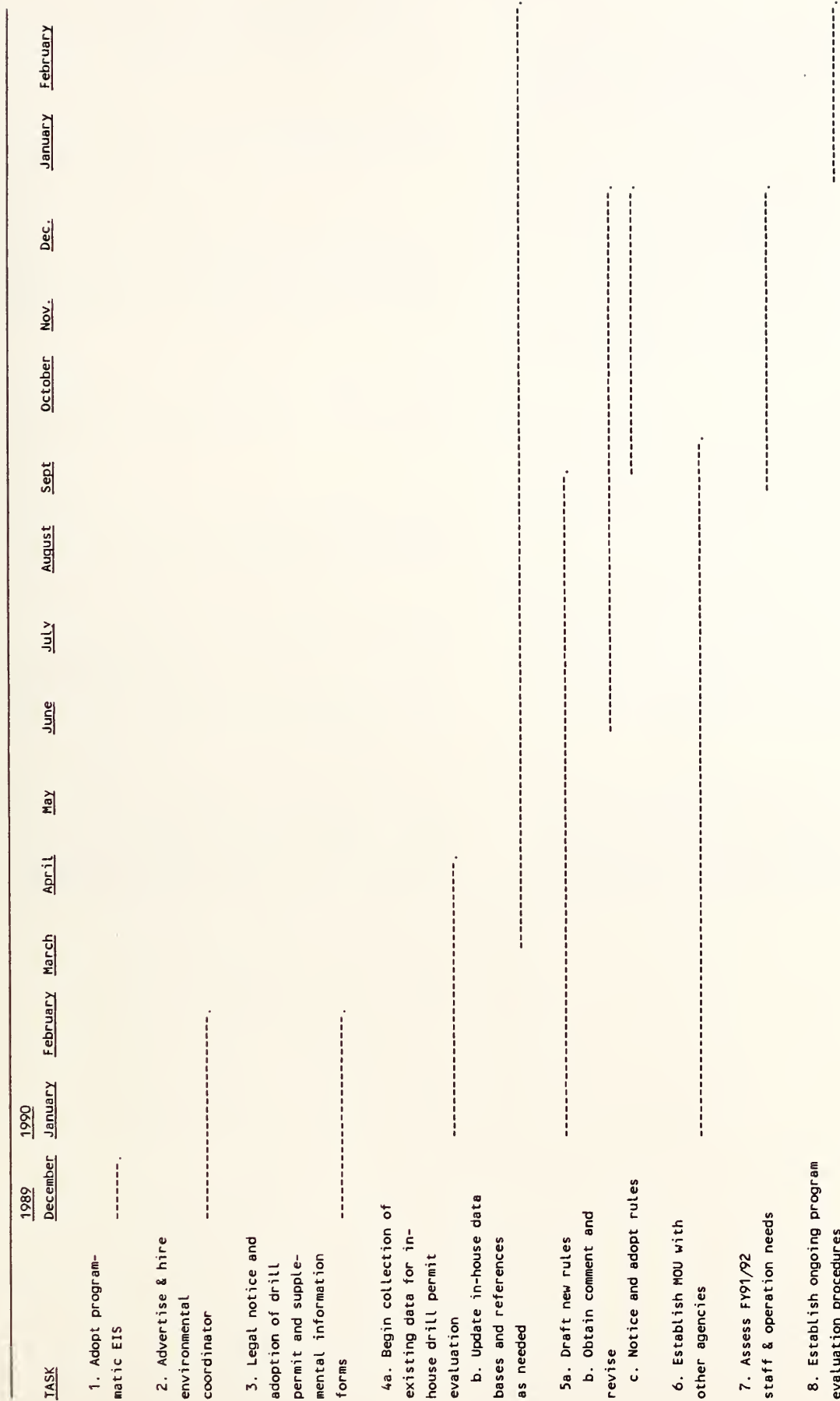
Phase III implementation would involve ongoing program evaluation and agency need assessment as part of biennial budgeting process.

Task 8. The Board will assess staff needs to address increases in industry activity and continue to update data bases to assist staff with drill permit review. The staff will reassess the source material/information needs of the MEPA review process. It will then obtain additional source material as funds permit and identify additional needs for inclusion in Phase III implementation.

SCHEDULE FOR IMPLEMENTATION

Figure 1 shows the schedule proposed for implementing the programmatic EIS.

Figure 1. Proposed MEPA Implementation Schedule.



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APPENDIX A

CORRECTIONS TO THE APPENDIX VOLUME OF THE DRAFT PEIS

The following technical corrections and changes should be incorporated into the separate Technical Appendix Volume published for the draft PEIS.

TECHNICAL APPENDIX 4: AIR QUALITY

Page 78, Table 4-2: Make the following changes:

Under Sulfur Dioxide, the federal secondary standard should be "0.5 ppm 3-hr coverage*."

Under Carbon Monoxide, the Montana standard also includes "23 ppm 1-hr average*"; the federal primary standard also includes "35 ppm 1-hr average*."

Under Settled Particulate, the Montana Standard should be "10 gm/m² 30-day average."

Page 79, last sentence of second paragraph should read: "A PSD permit is required when pollutant emissions are likely to be 250 tons or more per year."

Last sentence, bottom of same page, should read: "contaminate the air with sulfur dioxide, total suspended particulates, and nitrogen dioxide."

Page 81, Table 4-5: Allowable increments for nitrogen dioxide should be added to this table. After entries for Sulfur Dioxide, add the following:

Nitrogen Dioxide - Annual Mean -	25	25	25	100
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Page 83, Table 4-6: Heading second column, "Concentration level in the air" is measured in "parts per million."

Page 84, 1st paragraph, line 7: "carbon monoxide" should be "carbon dioxide."

Second paragraph, line 2: "some" should be "Some."

Page 86, from top of page, line 9: "15,000" should be "150,000."

Page 89, second paragraph, line 4: Following the word "fuel," insert "gas."

Following the section titled "Particulates: PM/10," add "/Total Suspended Particulates." In addition, on line 3 of the following paragraph, change "of" to "from."

Page 90, Figure 4-3: In the example cited in the figure, "30,773 tons/year SO₂" should be "307.73 tons/per year SO₂."

Page 91, near top of page: Reference to "LLM" should be "um."

Page 92, line 3: The "pr" should be "per."

Line 4, following word "permit," word should be "can."

In the middle of same page, under the explanation of variable R, change wording in the second sentence describing the 30 day measurement period from "must be" to "should be."

When calculating tons of sulfur dioxide per year, the cited formula should be modified as shown below:

$$SO_2 \text{ (tons/per)}, E = 0.00084 \times \frac{MCF}{\text{day}} \times \frac{\text{days operation}}{\text{year}} \times \%H_2S$$

Page 93, line 2: "working" should be "Working."

Line 7, following the word "Removal," insert "and."

Pages 93 and 94: The formula for estimating emissions of VOCs on pages 93 and 94 should be as follows:

The formula shown on page 93 should read:

$$L_B = 2.26 \times 10^{-2} M_V \frac{P}{P_a - P}^{0.68} (D^{1.73}) (H^{0.51}) (T^{0.50}) (F_P) (CK_C)$$

In the explanation of the equation factors, "T" should be "delta T."

Page 94: Bottom of page, add the following equation factors:

K_n = turnover factor (dimensionless). $K_n = 1.0$. for 36 turnovers per year or less.

For 300 turnovers per year, $K_n = 0.3$.

K_C = product factor (dimensionless). For crude oil, $K_C = 0.84$.

For all other organic liquids, $K_C = 1.0$.

Page 97: Table 4-10, last line of table, following "Sulfur," add "dioxide."

Page 98: Under Case #2, line 3, change "abut" to "about."

The following changes should be made to Table 4-11:

On line 3, "33.32 MCF per day" should be "333.2 MCF per day."

On line 9, following the word "Sulfur," add "dioxide."

Page 99, Table 4-12: Within the table, "Sulfur emission" should be "Sulfur dioxide emission."

Page 101: Change section titled "Hydrogen Sulfide Wells in the Williston Basin."

Line 5, change "87" to "75"; line 6, change "14" to "53"; line 7, before "BLM," add the following: "BLM has established a venting/flaring approval program for wells. Eighty-four wells have been approved through the program

and BLM has copies of gas analysis data for these wells. 65 of these wells are known to contain H_2S ."

Page 103, second paragraph, last sentence should be deleted.

Third paragraph, line 10, reference to "Tables 4-12" should be "Table 4-14."

Section titled "Carbon Dioxide Mitigation" should read "Carbon Monoxide Mitigation."

Page 104: Table 4-14 was inadvertently left out of the draft Appendix. It should be incorporated as follows:

Table 4-14. Average Storage Temperature (T_s) as a Function of Tank Paint Color

<u>Tank Color</u>	<u>Average Storage Temperature (T_s)</u>
White	$T_A + 0$
Aluminum	$T_A + 2.5$
Gray	$T_A + 3.5$
Black	$T_A + 5.0$

Where T_A = average annual ambient temperature in degrees Fahrenheit.

TECHNICAL APPENDIX 5: HEALTH AND SAFETY

Page 108, line 2: "american" should be "American."

Second paragraph, line 1: "aer" should be "are" and "speced" should be "spaced."

Third paragraph, lines 5 and 6: Reference to Table 4 should be deleted.

Page 112, second paragraph, lines 4, 6 and 7: Reference to "m/s" should be " m^3/s ."

Second paragraph, end of sentence on line 4, add the following: "where 1.0 m^3/s equals 35.31 ft^3/s ."

Page 119, line 3: "?-mile" should be "0.25 mile."

Page 121, line 4: Delete "42" following the word "were."

TECHNICAL APPENDIX 8: RECREATION AND AESTHETICS

Page 198, third paragraph, line 6: Change "(187)" to "(164)."

Page 199, Table 8-6: Estimated Recreation Visits are measured "in 1000's per year."

Page 200, Table 8-7: Reference in the Source should be to the "Montana Promotion Division."

Page 201, fourth paragraph, last line: Word "manages" should be "managers."

Page 203, second paragraph, line 1: "Damson" should be "Dawson."

TECHNICAL APPENDIX 10: VEGETATION

Pages 210 through 216: Tables 10-1 and 10-2 should be deleted and replaced with new Tables 10-1, 10-2, and 10-3.

REFERENCES

Page 292: Reference to Jean Wiedeman, Glacier County Commissioner is incorrect. Ms. Wiedeman is President, Cut Bank Chamber of Commerce.

APPENDIX B

CHANGES TO CHAPTER FIVE OF THE DRAFT PEIS

This section discusses changes made to the draft PEIS, Chapter Five, Program Alternatives. The Board made these changes to clarify the options it believes to be necessary for successful implementation of an efficient and timely environmental review process. These changes have been incorporated into Chapter Six of the final PEIS.

Page 175

Left column: Delete paragraphs two and three. This information is presented elsewhere in the draft PEIS or is not necessary for the purposes of the chapter.

Paragraph four should be changed as follows: On lines 4 and 5, delete "of the drilling location and access road, if drilling muds and" and replace it with "disposal of drilling." This editing change is made to reflect the Board's position regarding likely effects of most drilling operations.

Right column: Second paragraph, line 2. Delete "if the site and road are properly reclaimed" and insert "proper reclamation is used."

Third paragraph, lines 7 and 8, delete "but the impacts are inherently more serious than during drilling due to" and insert "and any effects should be evaluated in consideration of." This change was made in response to comments received regarding implicit negative tone present in the draft PEIS.

Page 176

Left column: In paragraph 3, delete lines 1 and 2 and the word "following." Insert "Most individual wells do not produce pollutants in quantities or concentrations that would violate air quality standards or trigger the need for an air quality permit. In the rare instance when a problem does arise, the effects may include:."

This change was made to reflect the Board's experience with air quality problems from wells.

Right column: First paragraph on line 7, delete sentence beginning with "At present" to end of paragraph. This material is discussed in more detail in earlier chapters of the draft PEIS.

Following heading "HEALTH, SAFETY AND NOISE," insert the following: "The oil and gas industry has developed an extensive array of specialized equipment and procedures to ensure proper control and operation of wells. Also, contingency plans may be prepared in sensitive locations to

identify the actions that would be taken to respond to a hydrogen sulfide emergency and protect the public."

In third paragraph, on line 9, delete "Hydrogen sulfide blowouts are" and insert "Well blowouts are extremely."

Paragraph 4, delete first two sentences. On lines 7 and 8, delete "Board rules could be strengthened by specifying" and insert after the word "that" this language: "the Board could specify." On lines 12 and 13, delete "Board review of applications for permits to drill could be strengthened by establishing" and substitute after "that" the following: "the Board could establish."

Page 177

Left column: Second paragraph, delete last sentence.

This change was made in response to comments about negative tone and lack of consideration to industry practices.

Move first paragraph from left column after the heading "WILDLIFE AND FISHERIES." Delete "The," insert "Possible" at the beginning of the first sentence; end the sentence after the word "period." On lines 5 and 6, delete "and increases in legal and illegal shooting."

The changes reflect the Board's experience with oil and gas developments in other areas of Montana.

Right column: The last sentence on page should be added to previous paragraph. Delete "be strengthened by adding guidance" and substitute "provide more specific directives." Remaining paragraph is deleted.

Page 178

Left column: Delete lines 1-6 on top of page.

Second paragraph, delete "adverse" from line 1. On line 2, delete remainder of sentence after the word "localized" and end sentence. Move first sentence from second paragraph before the word "Aesthetics" on line 6 of first paragraph.

Paragraph 3, add the following to end of paragraph: "In some instances, access roads can provide additional recreation opportunities."

Right column: Paragraph 2, end of line 7, delete "often" and replace with "usually."

Paragraph 3, line 6, delete "physically."

Paragraph 4, line 8, delete "dramatic."

Page 179

- Left column: Paragraph 2, lines 11 and 12, delete sentence beginning with "Impacts." Following the word "services" on line 12 of paragraph add: "than are smaller cities and towns."
- Right column: Paragraph 4, line 4, "mitigateadverse" should be "mitigate adverse"; line 10 "varioasaspects" should be "various aspects"; and line 13 "appro-priate" should be "appropriate."

Page 180

- Left column: On bottom page, delete last two lines.
- Change made to shorten discussion by removing language repeated elsewhere in chapter.
- Right column: First paragraph, delete lines 1-6 and word "reclamation."
- Paragraph 5, line 6, delete "be required to."
- Line 8, beginning with sentence "The Board," delete remainder of text and insert the following: "U.S. Forest Service and BLM have established practices and procedures for road location, construction, and management. Those practices are discussed in the Oil and Gas Surface Operating Standards, known as the Gold Book (BLM and U.S. Forest Service, 1989). Access roads across private lands usually are constructed to less stringent standards than those on public lands, but the construction methods and techniques available to minimize impacts are similar."

Page 181

- Left column: Delete lines 1-5 at top of page.
- Paragraph 2, line 3, delete "is one of the single most" and insert "may be one." Delete lines 6 through 13.
- Paragraph 3, delete lines 1-4 and "the human environment. Therefore." Change "it" to "It" to start paragraph. Delete "the Board" from line 5. Delete remainder of paragraph starting with sentence on line 10 that begins "A later."
- The Board acknowledges that access is an item of a drilling proposal that must be disclosed in the review of impacts. However, the Board believes that regulation of access is not a necessary component for implementing a MEPA process. Access issues have been and should continue to be matters for negotiation between the surface owner and the oil and gas operator.
- Paragraph 4, third line from bottom, delete "strengthened."

Right column: Paragraph 2, delete line 1 and word "is" from line 2. Add the following language to start of paragraph: "The Board could modify." Delete the word "for" at the end of line 4 and lines 5 and 6 in their entirety. Begin sentence with "The Board could provide." Delete last sentence.

Paragraph 6, on line 2, delete "rare. According to the analysis in Chapter Four,." Insert "extremely rare." Change "comprehensive" to "Comprehensive." On line 4, before "available," insert "proven and."

Page 193

Left column: First paragraph, line 3, after "working pressures.," delete to end of paragraph.

Second paragraph, delete lines 1-4 and the word "the" on line 5. Add "The current rules could have criteria added to assist oil and gas operators in selecting equipment based on." Line 6, delete "Similarly, criteria could be developed" and insert "Criteria could be added." Lines 9 and 10, delete "Additional guidance could be provided by the use of." Line 11, delete "which" and "the appropriate." Line 12, delete "level of."

Third paragraph is deleted entirely.

Fourth paragraph, delete lines 1 through 6. On line 7, insert "The" before "Board" and delete "also" after "Board."

Right column: Paragraph 1, delete "and Access Road" from line 1.

Paragraph 2, delete line 1 and "increase the likelihood of" from line 2. Add the following sentence to the start of second paragraph, "Some steps or activities used for."

Paragraph 3, lines 1 and 2, delete "defined principals and minimum acceptable."

Paragraph 4, lines 2 and 3, delete "and access roads." Line 9 following "failure," end sentence and delete remainder of paragraph.

Page 194

Left column: Paragraph 3, line 8, delete "be enhanced by provision of" and insert the word "provide" after "could."

Paragraph 4, line 3, delete "might be enhanced by" and after the word "rule," add "could provide."

Right column: Paragraph 4, lines 5 and 6, delete "which is primarily done to convert hydrogen sulfide for safety reasons or."

Page 195

Left column: Paragraph 2, delete last complete sentence. The deleted information repeats information summarized in Table 40.

Right column: Paragraph 3, line 1, replace "expediently" with the word "promptly."

Page 196

Replace Figure 47 with revised figure as shown to reflect how the Board believes the drill permit review process should be handled by the staff.

Page 197

Replace Table 41 with new table showing the staff's role in drill permit review as shown by Figure 47.

Page 198

Left column: Paragraph 2, delete all of line 1 and "used to expediently" on line 2. Begin paragraph as follows: "The types of information needed to promptly." Line 11, delete "to the Board." Paragraph 3, line 4, replace "would almost never" with "does not."

Right column: First paragraph, line 3, replace "Board" with "staff."

Second paragraph, on line 1, delete "A relatively large percentage of proposed" and insert "Eight-five percent or more of." These changes are to be consistent with earlier changes. Lines 6 and 7, delete "the Board would talk." Lines 8 and 9, delete "submitted by the operator or collected by the Board." Line 11, delete "any."

Paragraph 3, line 4, following the word "rule," end sentence and delete remainder of sentence. Lines 10 and 11, delete "and attaches a general condition to each drilling permit requiring compliance with these practices." Line 14, end sentence after "measures" and delete "in addition to the minimum practices."

Pages 199 and 200

Replace Figure 48 with new Figure 48.

Page 201

Left column: Paragraph 5, lines 6 and 7, delete "and checklist for its use."

Right column: First paragraph, delete "probably would" and substitute "may."

Paragraph 2, line 1, delete "the Board's."

Last paragraph, delete entire paragraph.

Page 202

Delete Table 42.

This table has been deleted because the Board believes that the mere presence of such features should not automatically trigger more detailed levels of review unless case-by-case analysis indicates such review to be necessary.

Page 203

Left column: Delete first paragraph. This change is made to be consistent with the Board's rationale in removing Table 42.

Second paragraph, line 3, delete "readily available." On lines 13, 18, and 20, insert "staff" in place of "Board." This change reflects earlier changes to Table 41 and Figure 47.

Right column: Delete first paragraph.

Paragraph 2, after sentence ending with the word "actions," delete remainder of paragraph.

Paragraph 3, line 6, end sentence after "site" and delete "(as listed in Table 42)."

Changes reflect those made to be consistent with other changes made by the Board.

Page 204

Delete Figure 42.

This figure was deleted to address concern by the Board that the categories in this figure could become the emphasis for determining levels of review required for wells rather than the checklist being used to determine necessary level of review on a case-by-case basis.

Page 205

Right column: Paragraph 1, line 6, delete "Table 41 shows that." On line 7, change "inadequate" to "Inadequate." On line 9, after the word "likely," insert "factors." Paragraph 4, line 1, replace "Board" with "staff."

Pages 206 through 210

Delete Figure 49 and replace with new figure.

This change reflects the wish of the Board that the checklist document specific characteristics of the drilling proposal and how the staff evaluated the potential for impact in more explicit terms.



